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14. ABSTRACT

This study forges the existing gap in the literature on military health care providers by focusing solely on Combat Medics. Medics serve a vital role in the OEF/OIF theatres, yet, there is a paucity of research on Combat Medics. The overall purpose of the study was to conduct a behavioral health assessment among Combat Medics, to determine what factors account for resiliency among combat medics, and if resiliency is static, wanes, or cycles over time. The study incorporates a mixed-methods, prospective longitudinal design utilizing US Army Combat Medics. Findings can assist educators and leaders of Combat Medics to better prepare future Combat Medics for service in combat zones. Results indicate that symptoms of depression may be a driving force for the development of mental health outcomes among combat medics, rather than symptoms of stress. Medics appear inclined to seek mental health assistance prior to the development of functional issues, but those who need the most assistance are the ones who report greater perceived stigma and barriers to care. Medics felt confident in their ability to identify soldiers at risk for suicide and in their ability to help soldiers get mental health assistance. However, fewer felt that training was adequate. Medics reported being well-trained and capable of performing their mission during combat operations but with many challenges related to types of shifts required during deployment, intensity and frequency of combat, and the ubiquitous nature of daily life on the front lines. Training on equipment was perceived as adequate, but 1/3 reported equipment did not function the way it was intended and supplies were lacking. Only 20% reported seeing as much combat as expected. It is unknown if the remaining 80% saw more or less than expected. However, the onus would be higher if they saw more than they had expected to see.

Table of Contents

Introduction.....	4
Body.....	4
Key Research Accomplishments.....	9
Reportable Outcomes	10
Conclusion	11
References	15
Appendices.....	16

INTRODUCTION

This study attempts to forge the existing gap on military health care providers by focusing solely on Combat Medics. Combat Medics serve a vital role in the OEF/OIF theatres, constantly placing themselves in danger in order to assist a fallen comrade. Yet, there is a paucity of research on Combat Medics generally, and factors accounting for their wellbeing, particularly. The overall purpose of the study is to conduct a behavioral health assessment among Combat Medics, to determine what factors account for resiliency among combat medics, and if resiliency is static, wanes, or cycles over time. By investigating resiliency, educators and leaders of Combat Medics can better prepare future Combat Medics for service in combat zones. The study incorporates a mixed-method, prospective longitudinal design utilizing three groups of Combat Medics. Group 1 consists of Combat Medics who recently returned from deployment to OEF/OIF theatre within the past three months; Group 2 includes Combat Medics who have not been deployed to OEF/OIF theatres within the past 12 months and Group 3 consists of Combat Medics who have never deployed to either Iraq or Afghanistan. From all data collected, we will create a model of resiliency to be tested in future studies.

Activities Related to the Approved Statement of Work

Goal One: Start up Activities Completed Nov 2009

Goal Two: Generate Samples. We had originally proposed to cluster sample among units stationed across Europe. However, this was not feasible due to the limited number of installations. Convenience sampling was utilized with the sample comprised of Soldiers at the following installation locations within Europe Regional Medical Command: Landstuhl Regional Medical Center, Heidelberg ERMC Headquarters, Mannheim, Illsheim, Katterbach, Baumholder, Vilseck, and Vicenza.

Goal Three: Baseline Quantitative Data Collection. Year 1 data collection in Europe occurred in Nov 2009. However, the main BCTs from which to draw a deployed group had deployed back stateside. With their departure, the required sample size could not be met and required a contingency plan. The contingency plan consisted of utilizing Ft Hood as an alternative site. With their inclusion, enough medics were recruited to power the study. Medics from Ft Hood were recruited if they were 3 months post deployment. The largest number of Medics were recruited from the 1st Calvary Division 2nd Brigade Combat Team, with other elements from 166th Aviation Brigade, 69th Air Defense Artillery Brigade, 36th Engineer Brigade, Soldier Development Center, 1st Medical Brigade, 62nd Expeditionary Signal Battalion, 504th Battlefield Surveillance Brigade, Carl R. Darnall Army Medical Center, 1st Battalion, 21st Field Artillery Regiment, 2nd Battalion 20th Field Artillery Regiment. First year Data collection with Ft Hood occurred in May 2010.

Goal Four: Qualitative interviews. Tulane University is the responsible party

Goal Five: Qualitative Data Analysis. Tulane University is the responsible party

Goal Six: Year 2 Data Collection (Tampa). Due to the inclusion of Ft Hood into the sample, there are two phases of data collection each year. Phase 1 refers to the ERMC group and Phase 2 refers to the Ft Hood group.

Year 2 Phase 1 data collection for ERMC occurred January 2011, and with 3 follow-ups, concluded March 2011. Year 2 Phase 2 data collection with Ft Hood did not begin until August 2011 - and with 3 follow-ups - should conclude November 2011. The 3 month delay in Year 2 data collection was due to two issues: 1) However, BAMC IRB was closed out prior to obtaining approval from USUHS, resulting in a delay of 2.5 months. 2) The quantitative PI relied on USF IRB to send a Continuing Review reminder. This did not occur, requiring the study to be closed and then re-opened under another study number. This resulted in an additional 2 week delay.

Demographics

Demographics are presented in Table 1. Deployment refers to being attached with a front line unit such as a BCT, where the majority of time is spent outside of the wire.

Characteristic n(%)	Never Deployed	3-6 mo. Post Deployment	12 mo. Post Deployment
Grade/Rank			
E-1 – E-4	192 (80.67)	224 (64.18)	80 (37.74)
E-5 or higher	46 (19.33)	125 (35.82)	132 (62.26)
Age			
Mean (SD)	25.73 (5.97)	28.00 (6.17)	30.98 (6.44)
Sex			
Male	136 (57.38)	287 (82.47)	164 (78.10)
Female	101 (42.62)	61 (17.53)	46 (21.90)
Race			
White	153 (65.38)	249 (72.81)	137 (65.55)
Black	35 (14.96)	50 (14.62)	38 (18.18)
Other	46 (19.66)	43 (12.57)	34 (16.27)
Education			
High-school or less	64 (26.89)	103 (29.51)	45 (21.23)
Some college	160 (67.23)	212 (60.74)	156 (73.58)
College graduate	14 (5.88)	34 (9.74)	11 (5.19)
Marital Status			
Not married	91 (38.24)	96 (27.51)	35 (16.51)
Married/Separated	133 (55.88)	209 (59.89)	153 (72.17)
Divorced	14 (5.88)	44 (12.61)	24 (11.32)
Deployment			
OIF	0 (0.00)	336 (97.67)	175 (93.09)
OEF	0 (0.00)	20 (10.70)	41 (38.68)

Current behavioral health status

One of the objectives of the study was to determine the current behavioral health status of Combat Medics who had recently deployed with line units. Results were presented utilizing a table similar to the

presentation of MHAT results (Hoge et al., 2004). The findings reported below were presented at the annual IPR in July 2011 and have been submitted for publication (Chapman, P., Baker, M., Elnitsky, C., Varela, C., Figley, C., Thurman, R., and Mayer, P., 2011).

Mental Health

Combat medics 3 months post-deployment were more likely to report a functional issue than those who had never deployed. This significant difference, however, was only observed for stress, and not depression. Approximately 18-30% of all medics received help in the past year from a mental health professional, with both groups of previously deployed medics significantly more likely to obtain assistance than those who had never deployed. Overall, Combat Medics seem to be rather resilient to combat stress. Using the Never Deployed (ND) group as a control, the odds ratios for both the broad and strict definitions for depression and stress were significant for the group of medics 3 months post-deployment (3PD). However, for medics 12 months post deployment (12PD), only the odds ratio for depression symptoms was significant compared to the ND control group, and this was only for the broad definition of depression. Findings remained significant after utilizing logistic regression to control for demographic variables of age, gender, grade/rank, education, and marital status. Thus, it appears that depression may be more of a long-term issue for Medics rather than stress.

In light of the above findings, differences in definitions of both stress and depressive symptoms were assessed. These definitions came from the literature and include the scoring the of a PHQ-9 score ≥ 10 had a sensitivity of 88% and a specificity of 88% for major depression, with 1-5 mild depression, 6-14 moderate, and 15+ severe. For stress, Bliese recommends that those scoring greater than 28 receive additional follow up, while the VA recommends those with scores greater than 50 as requiring additional follow-up. Our particular concern is for those 200 Soldiers currently in the moderate depression, which comprises approximately 38 % of our entire sample.

	Never Deployed (n=238)	3-6 mo Post Deployment (N=349)	12 mo Post Deployment (N=212)
	no./total no. (%)	no./total no. (%)	no./total no. (%)
Depression (PHQ)			
<6	151/222(68.02)	186/340(54.71)	122/193 (63.21)
6 -14	63/222 (28.38)	132/340 (38.82)	62/193 (32.12)
15 +	8/222 (03.60)	22/340 (06.47)	9/193 (04.66)
PTSD (PCL)			
<28	185/222 (83.33)	223/340 (65.59)	134/193 (69.43)
28-49	29/222 (13.06)	88/340 (25.88)	46/193 (23.83)
50 +	8/222 (03.60)	29/340 (08.53)	13/193(06.74)

Perceived Stigma/Barriers to Care

The proportion of medics reporting concerns about being stigmatized and about other barriers to accessing and receiving mental health services was generally twice as high for those who met the screening criteria compared to those who did not. For all medics, difficulty scheduling an appointment and difficulty getting time off were the two most frequently endorsed barriers to care. Additionally, there were significant differences in the endorsements between medics who met the screening criteria for a mental disorder and those who did not met the screening criteria. In terms of stigma associated with seeking care, leadership treating them differently (60.6%) and being seen as weak (53.8%) were the two most endorsed items.

Risk/protective factors that predict behavioral health outcomes

The second objective was to identify risk/protective factors that predict behavioral health outcomes among deployed Combat Medics. This was accomplished by utilizing two separate logistic regressions. A logistic regression was conducted to predict depression symptoms from some of our variables of interest. The dependent or criterion was the broad definition for depression coded as a 0 or 1. Predictors were NCO and Officer Leadership, positive growth, combat experiences, unit and personal morale, unit confidence, unit support, stigma, and barriers to care. Results were significant for positive growth, unit morale and personal morale. A second logistic regression was conducted to predict stress symptoms from some of our variables of interest. The dependent or criterion was the broad definition for PTS coded as a 0 or 1. Predictors were NCO and Officer Leadership, positive growth, combat experiences, unit and personal morale, unit confidence, unit support, stigma, and barriers to care. Results were significant for positive growth, combat experiences and personal morale.

Training, Deployment Preparation and Combat Experiences

Training, deployment preparation, and combat experiences of deployed Combat Medics were analyzed and is reported in a manuscript in the appendices (Chapman, P., Cabrera, D., Varela, C., Baker, M., Elnitsky, C., Figley, C., Thurman, R., & Mayer, P. (in press))

Combat Medics assigned to line units felt adequately trained to work the shifts required during deployment; and 68.0% reported that they had all the supplies needed to get their job done. While upwards of 80% felt they received adequate training on how to use the equipment; 77% felt that the equipment functioned the way it was intended. Over 80% of the Combat Medics felt they knew how to treat most animal, insect, and plant issues in the region. In terms of combat, 19.6% of the Medics reported seeing as much combat as expected and 40.6% indicated that they were accurately informed about what daily life would be like during deployment. Additionally, over 80% of Combat Medics thought they demonstrated success in their training during deployment.

Suicide Prevention and Stress Training

Of the Medics surveyed, 78.1% felt confident in their ability to identify soldiers at risk for suicide; with 75.8% indicating that the training was adequate. Roughly 89% reported being confident in their ability to help soldiers get mental health assistance, with 56.5% of Medics reporting that the training was adequate. Combat Medics were also queried on their own use of mental health counseling services within the past year. Approximately 27% had sought the assistance of a mental health counselor; 16.6% from a general medical doctor; and 13.6% from a combat stress control professional. 12.5% were seen by Chaplains; 4.6% sought out another Solider; and 4.6% spoke with a fellow Combat Medic.

In congruence to the utilization of care, Medics were asked questions regarding stigma and barriers to behavioral and mental health care. Not unlike other soldiers in the Army, 40.3% of Combat Medics surveyed reported that unit leadership would treat them differently, 32.6% were worried other soldiers would have less confidence in them, and 30.5% reported that they would be seen as weak. Logistical issues included lack of adequate transportation (4.9%), difficulty scheduling an appointment (29.2%) and difficulty getting time off (25.7%).

Combat Experiences

Almost 90% of Combat Medics assigned with line units went on combat patrols and most of those received some type of hostile incoming fire. Roughly a third witnessed someone from their unit or an ally being seriously wounded or killed enemy troops being seriously wounded or killed. While over 20% fired their weapon at the enemy, roughly 8% killed or thought that they killed someone in battle. To supplement the Combat Experiences Scale (DRRI), Combat Experiences (MHAT) data were also reported. Of note, a large percentage of Combat Medics deployed with line units provided aid to the wounded, with 41.2% saving the life of a soldier/Marine. However, 53% of Combat Medics reported seeing injured women and children that they were unable to help.

Combat Medics assigned to BCTs are participating in a number of soldier-centric duties such as clearing and searching homes/building (57.6%) or bunkers/caves (17.6%), disarming civilians (36.3%); being attacked or ambushed (57.4%); receiving small arms fire (52%); working in mined areas (73.3%); and having an IED explode near them (54.5%). Overall, 52.7% reported having a member of their unit become a casualty. The post-battle arena revealed another set of experiences to complement both Combat Experiences Scales. About half of Combat Medics saw civilians (53.3%), soldiers or allies (49.9%) or enemy combatants (42.2%) severely wounded or disfigured in combat. Many cared for the injured or dying (77.2%), while 42.4% were exposed to the sight, sound, or smell of dying men and women. In terms of death, 39.2% of Combat Medics reported seeing dead bodies of civilians; 35.9% saw deceased enemy combatants, and 33.4% witnessed deceased soldiers/allies.

LOGISTICAL AND ADMINISTRATIVE MATTERS

* A modification to the BAMC IRB was submitted by the Military PI, allowing for items of a medic mettle scale to be included in the Year 2 on-line data collection. Originally, this was to be conducted via focus groups. After conversing with the Military PI about the importance of utilizing focus groups rather than sending the 127 items to all Soldiers to answer and then comment on, the Military PI insisted that this be conducted online and sent to all 700 plus Soldiers. As the main survey for which this study was funded is already challenging in length, the items were placed as a separate online survey. Updates for this online survey have been provided to the Military PI. Additionally, numerous offers to assist in setting up focus groups for the qualitative team have gone unanswered.

KEY RESEARCH ACCOMPLISHMENTS:

- A methodology template was created to streamline the publication process
- Year 1 data collection and analysis completed.
- Year 2 data collection completed. Data being cleaned.
- Presentations, publications and abstracts listed below
- Mentoring of graduate students: Two posters submitted and accepted to AMSUS conference. Both posters are authored by graduate students being mentored in Soldier Resiliency and pertain to the dissemination of the two manuscripts listed below.
- Additional funding based on preliminary findings from this grant.

REPORTABLE OUTCOMES

Appendix E

Interviews

Robbins, S., & Beardsley, S. (2011, September 16). Study looks at sychological effects suffered by combat medics: Interview with Paula Chapman, Ph.D.. *Stars and Stripes*. Retrieved from <http://www.stripes.com/news/study-looks-at-psychological-effects-suffered-by-combat-medics-1.155272>

Tozer, J. (2011, July 25). Medical monday: Care for the combat medic. *Research Spotlight for DoD Live*. Retrieved from <http://www.dodlive.mil/index.php/2011/07/care-for-the-combat-medic/>

VA Research Currents (2011, May) Caring for the medic: Interview with Paula, Chapman, Ph.D.. *VA Research Currents Research News from the U.S. Department of Veterans Affairs*. Retrieved from <http://www.research.va.gov/currents/may-june11/may-june11-03.cfm>

Manuscripts in review

Chapman, P., Baker, M., Cabrera, D., Varela-Mayer, C., Elnitsky, C., Figley, C., Thurman, R., Lin, Chii-Dean, & Mayer, P. (2011). Mental health, stigma, and barriers to care: Key findings from U.S. Army combat medics deployed with line units. Manuscript submitted for publication.

Manuscripts in preparation

Chapman, P., Baker, M., Cabrera, D., Varela-Mayer, C., Elnitsky, C., Figley, C., Thurman, R., Lin, Chii-Dean, & Mayer, P. (2011). Mental health, stigma, and barriers to care: Key findings from U.S. Army combat medics deployed with line units. Manuscript submitted for publication.

Poster and Oral Presentations

Poster Presentations

Pitts, B., Thurman, R., Varela, C., Chapman, P. (2011, November). *The soldier medic mettle study: Perceptions of training and combat experiences*. Poster presented at the 19th Annual Poster Session of Association of Military Surgeons of the United States, San Antonio, TX.

Varela, C., Thurman, R., Pitts, B., Chapman, P. (2011, November). *Stigma and barriers to care among Army combat medics*. Poster presented at the 19th Annual Poster Session of Association of Military Surgeons of the United States, San Antonio, TX.

Symposium Oral Presentations

Chapman, P., Maiers, A., Mayer, P., Baker, M., & Escolas, S. (2010, December). Resilience and behavior health of combat medics. In J. Evans, K. Roberts & J.E. Gorman (Chairs), *3rd Annual Trauma Spectrum Conference*. Symposium conducted at the meeting of the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DcoE), National Institutes of Health, and the Department of Veterans Affairs (VA), Bethesda, MD.

Figley, C., Cabrera, D., & Chapman, P. (2010, November). An investigation into the factors predicting resilience among combat medics between deployments: Preliminary findings. In J. Bisson & N. Roberts (Chairs), *ISTSS 26th Annual Meeting*. Symposium conducted at the meeting of International Society for Traumatic Stress Studies, Quebec, Canada.

Figley, C., Cabrera, D., Pitts, B., & Chapman, P. (2011, November). Saving not taking lives: Measuring combat medic mettle. In C. Jackson & B. Stolbach (Chairs), *ISTSS 27th Annual Conference*. Symposium conducted at the meeting of International Society for Traumatic Stress Studies, Baltimore, MD.

Maiers, A., Mayer, P., Baker, M., Escolas, S., & Chapman, P. (2011, March). Research with psychological risk and resiliency factors of combat medics and corpsmen. In C. Engel & C. O'Hara (Chairs), *2011 Armed Forces Public Health Conferences Partners in Prevention*. Symposium conducted at the meeting of U.S. Army Public Health Command and Navy & Marine Corps Public Health Center, Newport News, VA.

Interviews

Robbins, S., & Beardsley, S. (2011, September 16). Study looks at sychological effects suffered by combat medics: Interview with Paula Chapman, Ph.D.. Stars and Stripes. Retrieved from <http://www.stripes.com/news/study-looks-at-psychological-effects-suffered-by-combat-medics-1.155272>

Tozer, J. (2011, July 25). Medical monday: Care for the combat medic. Research Spotlight for DoD Live. Retrieved from <http://www.dodlive.mil/index.php/2011/07/care-for-the-combat-medic/>

VA Research Currents (2011, May) Caring for the medic: Interview with Paula, Chapman, Ph.D.. VA Research Currents Research News from the U.S. Department of Veterans Affairs. Retrieved from <http://www.research.va.gov/currents/may-june11/may-june11-03.cfm>

Funding applied for based on work supported by this award

Based on Year 1 preliminary findings, a pilot grant to assess personality characteristics of in-coming medics was funded. A BAA will be submitted to follow these medics.

A BAA will be submitted to assess Navy, Air Force and Army Combat Medics from basic.

Employment or research opportunities applied for and/or received based on experience/training supported by this award.

Not at this time

CONCLUSION:

As this is the first report to be conducted of US Army Combat Medics who have deployed with line units, results are very important. However, there are several findings that are particularly important. As in previous research the percentage of participants who met the screening criteria for depression was higher among soldiers after deployment rather than before deployment (Hoge et al., 2004). Though not significant, frequencies of soldiers who met the screening criteria for depression were higher among those soldiers 3 months post-deployment compared to soldiers 12 months post-deployment. Surprisingly, a different pattern emerged for stress—only soldiers 3 months post-deployment were significantly different than soldiers never deployed. There were no significant differences in the percentage of participants who met the screening criteria for stress between soldiers never deployed and soldiers 12 months post-deployment. In terms of any mental health issue, the percentage of participants that met the screening criteria was significantly higher among soldiers after deployment rather than before deployment. While further research should be conducted, these results seem to indicate that symptoms of depression may be a driving force for the development of mental health outcomes among combat medics, rather than symptoms of stress.

Published rates of mental health issues among post-deployment military samples are similar to those observed in this study, with the exception of depression symptoms. Research has shown that the majority of

persons likely to struggle with issues of stress and depression will emerge within the first three months after returning from combat, with delayed onset occurring 6-12 months post-deployment (Milliken, Auchterlonte, & Hoge, 2007; Frueh, Grubaugh, Yeager, & Magruder, 2009; Andrews, Brewin, Philpott, & Stewart, 2007). Thus, administering the surveys three and twelve months after the Soldiers had returned from deployment was appropriate for investigating the long-term risk of mental health problems associated with combat. The study is ongoing, allowing us to examine this risk in longitudinal assessments involving the same units over time.

Results from this study indicate that combat medics appear to be inclined to seek mental health assistance prior to the development of a functional issue. While approximately 20% of medics who deployed with a line unit in the past 3 months reported a functional issue with either stress or depression, many more sought assistance. Particularly, the percentage seeking mental health assistance from a mental health professional was significantly higher among those post-deployment compared to those who had never deployed. This same pattern continued for any help seeking (e.g., medical doctor, combat operational stress officer, other combat medic). There were no significant differences in reported help-seeking between soldiers 3- and 12-months post-deployment.

Combat medics who need the most assistance appear to be the ones who report greater perceived barriers to mental health-seeking, as well as stigma from seeking such care. Participants reporting higher levels of symptoms had greater perceived barriers including difficulty scheduling appointments, getting time off for treatment and not having adequate transportation. Further, approximately 50% of these participants who met the screening criteria for a mental disorder reported a perceived stigma that their unit leadership might treat them differently, they would be seen as weak, and members of their unit might have less confidence in them. These findings are consistent with previous studies examining the relationship between psychological symptomatology and perceived treatment-barriers among service members and suggest that perceptions of and willingness to use care could be negatively impacted by the presence of psychological symptoms (Hoge et al., 2004; Kim et al., 2010; Wright et al., 2009; Vogt, 2011). Likewise, it could be that those service members needing care have actually initiated help-seeking activities in the past, only to realize the difficulty due to barriers and stigma. While the Army has taken steps to improve the stigma across the military, it is still very influential among soldiers, including medics, who are trained in the identification of soldiers who may need assistance, as well as where to obtain such services (Adler, Bliese, McGurk, Hoge, & Castro, 2011; Deahl et al., 2000). Certainly, additional research is needed to more fully comprehend the underpinnings of these issues.

Finally, it is important that military leadership accommodate service members so they can access mental health services. Currently, the focus appears to be on developing strategies to change the stigma associated with seeking mental healthcare. Because of the military culture, this will be a long and difficult journey; a more direct route might be for military leadership to enact change in how services are delivered and received by service members rather than changing the minds of others. Telemedicine technologies are more accommodating

to soldier schedules - particularly deployed soldiers - and would eliminate barriers such as the need for excessive travel time and transportation issues. Additionally, allowing former military personnel who are now trained clinicians to provide such care may not remove the stigma associated with mental healthcare, but it may ease the worry that others may find out about their help-seeking.

In terms of training, Combat Medics reported being well-trained and capable of performing their mission during combat operations. However, other intangible elements of modern day combat infuse an ever-changing element into the mission that Medics must learn to overcome. This includes the types of shifts required during deployment, intensity and frequency of combat, and the ubiquitous nature of daily life on the front lines. While training on equipment was perceived as adequate, about a third reported that the equipment did not function the way it was intended and that they lacked needed supplies. While the issues of malfunctioning equipment and lack of supplies may be beyond the purview of the DCMT, of particular concern is that 20% reported seeing as much combat as expected. It is unknown if the remaining 80% saw more or less than expected. However, the onus would be higher if they saw more than they had expected to see.

A second finding is that 40% indicated that they were accurately informed about what daily life would be like during deployment. While the diffuse nature of combat, unit types, regions of war etc, makes it difficult to explain 'daily life' for any particular soldier in a war zone, it may be prudent to depict such conditions -- be it environmental, physical, or mental -- as closely as possible. Another alternative would be to have a recent graduate return to the school to provide a very real account of what the Medic has experienced, allowing for questions and answers from the current graduating class. This recommendation would be in addition to the combat veterans who are already teaching the Combat Medic courses. Addressing these two issues may be necessary in future training of Combat Medics to insure optimal performance.

Combat Medics felt confident in their ability to identify soldiers at risk for suicide and in their ability to help soldiers get mental health assistance. However, fewer felt that this training was adequate. Given the Army's focus on soldier suicides coupled with the fact that Medics may be called upon to serve as the moral compass or mental health counselor when elements go out on foot patrol, suggests that further training in stress management and mental health care may be warranted. An evidence-based, validated program could be utilized in preparing Medics to recognize mental health issues on the battlefield from two perspectives - that of a combat soldier and that of a medical provider. It is important that they receive adequate training in their ability to assess, refer, and manage stress and other mental health issues, as the enlisted medic is often the frontline trauma care provider. As such, an appropriate program should be specifically tailored to the Combat Medic, whose dual battlefield duties are unique.

Although Medics are seeking counseling services while deployed, stigma and barriers to care reported by other soldiers³ are also prevalent among Combat Medics. Because it is imperative that Combat Medics be physically, mentally, and emotionally fit in order to make split-second, life or death decisions, it may

be necessary to more strongly encourage Medics during training that seeking mental health assistance is a normal part of the job and to provide an easier way for Medics to seek such care while in the field. Medics are not only vulnerable to primary traumatic stress and stress injuries¹² but also secondary traumatic stress or compassion fatigue as part of their role as medical service providers. Thus, needing some assistance to 'reset' should be seen as normal for health care providers such as the Combat Medic rather than a sign of weakness. It may be necessary to not only continue to address these issues in Officer and NCO training curriculums, but to reiterate the importance of obtaining assistance when needed, particularly during times of war.

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APPENDICES

Appendix A

Manuscripts in press

Chapman, P., Cabrera, D., Varela, C., Baker, M., Elnitsky, C., Figley, C., Thurman, R., & Mayer, P. (in press). Training, deployment preparation, and combat experiences of deployed health care personnel: Key Findings from U.S. Army combat medics assigned to line units. *Military Medicine*.

Military Medicine

Training, Deployment Preparation, and Combat Experiences of Deployed Health Care Personnel: Key Findings From Deployed U.S. Army Combat Medics Assigned to Line Units

--Manuscript Draft--

Manuscript Number:	MILMED-D-11-00305R1
Full Title:	Training, Deployment Preparation, and Combat Experiences of Deployed Health Care Personnel: Key Findings From Deployed U.S. Army Combat Medics Assigned to Line Units
Short Title:	Deployed U.S. Army Combat Medics Assigned to Line Units
Article Type:	Feature Article and Original Research
Section/Category:	Mental Health/Psychiatry
Keywords:	Military, Training, Deployment, Combat Medics
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All Authors Secondary Information:	
Manuscript Region of Origin:	USA
Abstract:	Objective: Describe perceptions of training and deployment preparation and combat experiences and exposures of U.S. Army Combat Medics. Methods: Data were from the first year of a 3-year longitudinal study designed to assess the impact of combat on the behavioral health and resilience of 347 Combat Medics surveyed 3-6 months after returning from a 12-month deployment to OEF/OIF theatre and assigned to Brigade Combat Teams. Results: Analyses indicated that Combat Medics may benefit from better preparation in types of shifts required during deployment; type and intensity of combat likely to be seen and experienced; more adequate training in the area of stress and mental health care management; and easier access to behavioral mental health care. Conclusions: The military has shown considerable progress in addressing and understanding the mental health care needs of Soldiers. However, challenges remain. Additional emphasis should be placed on reducing the stigma and barriers related to mental healthcare both in theatre and garrison; and developing an evidence-based, validated program for Medics and other Soldiers to recognize stress and mental health

	issues on the battlefield. For Medics, this should be from two perspectives - that of a combat Soldier and that of a medical provider.
Suggested Reviewers:	<p>Alan Maiers, PsyD BAMC ALAN.J.MAIERS@US.ARMY.MIL</p> <p>Dr. Maiers is a clinician at Warrior Resiliency Program where he serves as Director and oversees clinical services. He is a clinical psychologist with a range of experience working in the VA and DoD. Specifically, he has provided expert clinical care to service members or beneficiaries. He also has significant research experience with military personnel. He has reviewed manuscript in other peer reviewed journals and is very qualified to review this manuscript.</p>
	<p>Brandi Booth Brandi.Booth@AMEDD.ARMY.MIL</p> <p>Dr. Booth is a clinical psychologist with a range of experience working in the VA and DoD. Specifically, she has provided expert clinical care to service members or beneficiaries. She also have significant research experience with military and law enforcement personnel. She has reviewed manuscript in other peer reviewed journals and is very qualified to review this manuscript.</p>
Opposed Reviewers:	
Response to Reviewers:	<p>Attached is the revised manuscript entitled 'Training, Deployment Preparation, and Combat Experiences of Deployed Health Care Personnel: Key Findings From U.S. Army Combat Medics Deployed with Line Units'. Thank you for granting us the opportunity to submit revisions to our original manuscript. To incorporate the changes requested the word count has increased to 4,171 (the original word count was 4,030). I have responded to reviewer comments below and used track changes in the manuscript body document.</p> <p>Reviewer #1: Thank you for your kind comments. You mentioned the results on page 11, where 20% of medics report that they saw as much combat as they expected. The point here is that 20% saw what was expected and thus the amount of combat experienced was not something that was surprising to them. The concern is really with the 80% - a large percentage of the sample - who did not see as much combat as expected. You are correct in that it is unknown if they saw more or less combat than expected and we have taken your excellent suggestion and incorporated that into the paper. The concern for this group arises from the literature on one's expectations and how they shape us mentally, particularly for war. Those who saw what they expected probably had one less 'surprise' in which to adapt, as opposed to the others. We feel that this is important, as generally knowing what to expect may serve as a protective factor for some soldiers.</p> <p>Reviewer #2: Thank you for your comments. We have explained a bit more why this may not be generalizable across the board to other Soldiers and Service members. It basically comes down to tempo and combat intensity during the time participants were deployed to Iraq as opposed to Afghanistan, different MOS's and their missions, and differences in Service branches.</p> <p>You reference our comment that Medics should receive a training program "specifically tailored" to the Combat Medic (pg. 12). Surprisingly, this was suggested by the Director at DCMT. Therefore, I suspect that there is not currently a program formatted specifically to combat medics. While it may be feasible to adapt an existing program for this purpose, it is unknown if any particular existing program would be able to meet the specific needs of combat medics, as most military-provider research and intervention work has targeted MDs and RNs. Additionally, I do have some ideas concerning a training program, but I wish to keep those close to the vest, as we are currently writing a proposal specifically for this purpose.</p> <p>Best Regards, Paula L. Chapman, Ph.D.</p>

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Training, Deployment Preparation, and Combat Experiences of Deployed Health Care Personnel: Key Findings from Deployed U.S. Army Combat Medics Assigned to Line Units

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Keywords:

Military, Training, Deployment, Combat Medics

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4 *I want you to be able to close your eyes and smell the aviation fuel mixed with the third-world*
5 *stench of human waste, charcoal, and rotten fruit. I want you to smell the stink of sweat and*
6 *blood mixed with gunpowder and burning tires. I want you to be able to hear the roar of*
7 *helicopters overhead, mixed with the distinctive sound of AK-47 rounds and the whoosh of*
8 *rocket-propelled grenades as they go past. I want you to hear the deafening echo of continuous*
9 *gunfire along narrow, confined streets mixed with the screams of “Medic” and “I’m hit” from*
10 *the dying and wounded. I want you to see buddies to your left and right being hit and to feel the*
11 *bullets passing by, sometimes through your clothing and equipment, and I want you to*
12 *understand the effect that has on your concentration and psyche.*

26 *2LT Robert Mabry*¹

27 28 **Introduction**

31 Operations in Iraq and Afghanistan have led to a steady stream of information on the
32 health of U.S. service members.^{2,3} However, little is known about an exemplar group of service
33 members charged with the behavioral health and well-being of other service members while on
34 the front lines – enlisted combat medical personnel. The objective of this paper is to describe the
35 perceptions of training and deployment preparation and types of combat experiences of deployed
36 U.S. Army Combat Medics. The paper begins with a brief history of battlefield care and Combat
37 Medic training, followed by the perceptions of training and preparedness and combat
38 experiences among a sample of Combat Medics who deployed with line units to the OEF/OIF
39 combat theatre of operations.

40 Brief History of Battfield Care

41 Battlefield care emerged in Europe when Post-Revolutionary France established a system
42 of pre-hospital care that included a corps of litter-bearers to remove wounded individuals from
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4 the battlefield. It was not until the American Civil War that the concept of clearing the battlefield
5 and transporting the wounded to field hospitals expanded. The need for pre-hospital care by
6 trained military personnel was recognized in World War I, with advances in technology and
7 science aiding medics to deliver such care. During the Vietnam War, graphic representations of
8 the vital role played by medics in saving lives became apparent.
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11 Although, Combat Stress Control (CSC) clinics receive most of the focus for mental
12 health care of deployed soldiers, little is known about the mental health role and impact of
13 Combat Medics.⁴ For the U.S. Army, pre-hospital trauma care on the battlefield is most
14 commonly provided by the Combat Medic. The Army Medic receives extensive training for
15 treating soldiers in a tactical environment. This training on the battlefield – called *Tactical*
16 *Combat Casualty Care* – is utilized during combat missions and must be pertinent to the
17 immediate combat environment.^{1,5,6,7}

18 Due to the unpredictable and sometimes harsh nature of war, Combat Medics must take
19 into account uncontrollable factors such as incoming hostile fire, contact with enemy forces,
20 darkness, resource limitations, prolonged evacuation times, unique battlefield casualty
21 transportation issues, command and tactical decisions affecting health care, extreme
22 environments, and provider experience levels. Combat Medics are trained to recognize and
23 understand the differences that tactical environments create in their ability to deliver trauma care
24 to soldiers on the battlefield. They learn to concentrate on interventions that immediately address
25 preventable causes of death until the tactical environment permits more comprehensive medical
26 care.^{1,5,6,7}

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4 Current Training Curriculum
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7 Combat Medics are trained by the Department of Combat Medic Training (DCMT) at the
8 Medical Education and Training Campus (METC). Training lasts 16 weeks and is conducted in a
9 multifaceted learning environment where lectures, demonstrations, hands-on practical exercises,
10 and a scenario-based combined Field Training Exercise (FTX) are utilized. Current training of
11 the Combat Medic includes the Emergency Medical Technician-Basic course (EMT-B), limited
12 primary care, and tactical medicine.⁷
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15 All soldiers training to become Combat Medics must pass the EMT-B course, a 7-week
16 course where soldiers must attain healthcare provider CPR certification and graduate as
17 nationally registered Emergency Medical Technicians. Limited training in primary care is also
18 provided and consists of sick call procedures, medical documentation, pharmacology, and
19 routine wound care. Soldiers also receive two hours of mental health care training, two hours of
20 behavioral health emergencies; three hours of Battle Mind resiliency training; and one hour of
21 depression/suicide recognition and prevention. Lastly, soldiers receive 6 weeks of Tactical
22 Combat Casualty Care (TCCC) fundamentals which includes core skills of combat casualty
23 assessment and battlefield treatment. This consists of training in the use of tourniquets;
24 hemostatic agents; needle chest decompression; surgical airways; King LT airways; and IV and
25 FAST-1 training. Potential Combat Medics are then tested on their overall knowledge and skills
26 during a two week FTX. The FTX incorporates simulated exercises in convoy operations; patrol;
27 military operations in urban terrain; battalion aid station; chemical, biological, radioactive,
28 nuclear, and explosive exercises; and mass casualty exercises.
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31 To date, this training has resulted in the lowest Killed In Action (KIA) rate in U.S.
32 military history, which is attributed to improved TCCC, highly skilled medics who are better
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4 prepared to care for the wounded, enhanced personal protective equipment, emphasis on
5 hemorrhage control, and improved medical evacuation response times. However, as important as
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7 Combat Medics are to the U.S. Army, relatively little is known about how well-prepared they are
8 for the battlefield as well as the combat experiences they endure. This paper presents perceptions
9 of Combat Medics in terms of their training and deployment preparation for the battlefield, to
10 include their self-perceived ability to identify other soldiers needing suicide or stress assistance;
11 and combat experiences and exposures in the current conflicts. The results of this study may
12 prove pertinent to future Combat Medic training and battlefield sustainability.
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15 **Method**
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18 *Sample Design and Participants*
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21 Data are from the first year of a 3-year longitudinal study designed to assess the impact of
22 combat on the behavioral health and resilience of U.S. Army Combat Medics. To be eligible to
23 participate, soldiers must have been U.S. Army Combat Medics stationed in Europe or Fort
24 Hood, Texas during the initial year of the study and agreed to complete follow-up surveys. Study
25 groups were comprised of 841 Combat Medics, of which 385 were attached to military
26 installations across Europe, and 456 at Fort Hood. The focus of this paper is on the 347 Combat
27 Medics surveyed 3 months after returning from a 12 month deployment to OEF/OIF theatre.
28 Most had deployed to Iraqi theatre of operations, and all had been assigned to Brigade Combat
29 Teams (BCTs).
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32 *Data Collection*
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35 Initial data were collected in person between November 2009 and May 2010.
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37 Identification and enrollment of participants followed a three-step process. First, Europe and Ft.
38 Hood staff identified units with Medics meeting the eligibility criteria, and coordinated data
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4 collection visits with Command. Research team members then visited each installation to recruit
5 participants. Eligible participants attended a briefing where they were informed about the study
6 and provided time to ask questions regarding the study. Written informed consent containing
7 statements about the purpose of the survey, the voluntary nature of participation, and methods
8 used to ensure participant confidentiality and anonymity was obtained.
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16 The response rate among soldiers who were briefed was 96 percent combined. The rates
17 of missing values for individual items in the survey were generally less than 10 percent. The high
18 response rate was probably due to a number of factors, including the use of both active duty and
19 civilian researchers as well as the overwhelming Command support for this research. The study
20 was conducted under a protocol approved by the Institutional Review Board of the Brooke Army
21 Medical Center.
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Key Measures

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33 Measures originated from the previous MHAT² studies of the U.S. Army and the *Manual*
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36 *for the Deployment Risk and Resilience Inventory (DRRI): A Collection of Measures for*
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38 *Studying Deployment-Related Experiences of Military Veterans.*⁸ Psychometric properties for the
39 MHAT measures are provided elsewhere.² The variables are grouped as training and
40 preparedness and combat experiences and exposures.
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Training and Deployment Preparation

Deployment Preparedness

50 Preparedness was measured using the *Training and Deployment Preparation Scale* from
51 the DRRI.⁸ The scale was designed to measure the extent to which an individual perceives that
52 he/she was prepared for deployment. Response options are based on a 5-point Likert scale.
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58 Percentages are reported for those who strongly agree or agree.
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4 *Effectiveness of Mental Health Training*
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6 Effectiveness of mental health training was measured with the 4-item *Training Adequacy*
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8 *for Stress and Suicide* scale from the MHAT-V.² The items are designed to elicit the adequacy of
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10 training for deployment stressors and suicide. Response options are based on a 5-point Likert
11 scale. Percentages are reported for those who strongly agree or agree.
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14 **Deployment Experiences**
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16 *Perceived Threat*
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18 Perceived threat was measured with the 15-item *Perceived Threat Scale* from the DRRI.⁸
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20 The measure was designed to assess fear for one's safety and well-being in the war zone,
21
22 especially as a response to potential exposure to circumstances of combat. Items are measured on
23
24 a 5-point Likert scale. Percentages are reported for those who strongly agree or agree. Alpha
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26 reliability is reported as .89.⁸
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29 *Combat Experiences (DRRI)*
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31 Experiences of combat were measured with the *Combat Experiences Scale* (CES) from
32
33 the DRRI.⁸ This 15-item scale was designed to measure exposure to stereotypical warfare
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35 experiences such as firing a weapon, being fired on (by enemy or friendly troops), witnessing
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37 injury and death, and going on special missions or patrols that involve such experiences. Items
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39 are dichotomous (0 = No; 1 = Yes), with percentages displayed for those who responded
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41 affirmatively. Alpha reliability is reported as .85.⁸
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44 *Combat Experiences (MHAT)*
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46 In addition to the CES, the *Combat Experiences Scale (MHAT)* is used to assess a wide
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48 variety of potential warfare events. The measure consists of 35-items used in the MHAT-V.²
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50 Each item is dichotomized into 0 = *Never Experienced* and 1 = *Experienced at Least Once*.
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4 *Aftermath of Battle*
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6 The experiences related to the aftermath of battle were measured with the *Post-Battle*
7 *Experiences Scale* from the DRRI.⁸ The scale was designed to measure exposure to the
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9 consequences of combat. The 15 items are dichotomous, (0 = No; 1 = Yes), with percentages
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11 displayed for those who responded affirmatively. Alpha reliability is reported as .89.⁸
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14 *Quality Control and Statistical Analysis*
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17 Responses to the survey were scanned using Teleform⁹. The researchers have utilized the
18 Teleform software system as a design, data processing and verification, and data export package
19 for numerous past and ongoing research projects. The Teleform system provides a variety of
20 quality control mechanisms that help establish a high level of accuracy and integrity of study
21 data. Form templates are developed to mirror methodological standards of the study protocol and
22 parametric standards designated by the corresponding research instrument. Once developed,
23 templates are printed as hard copy surveys and utilized in the field as data collection instruments.
24
25 Completed surveys are then scanned via the Teleform Scan Station application where the images
26 are matched against corresponding internal templates via the Teleform Reader application. Once
27 the templates have been matched various Checkpoint Quality Control (CQC) mechanisms are
28 triggered allowing trained operators to review specific fields as designated in the templates
29 underlying validations. As a standard operating procedure, all data collection fields were
30 reviewed for accuracy by comparing the value of the scanned hard copy image with that of the
31 corresponding paper version. At the completion of the verification process, data are then
32 exported to its designated file type (delimited, Excel, Access, etc.). During the final stage of
33 quality control, exported data was processed using SAS software (version 9.4) in order to
34 identify outlier and/or missing values. Data analysis was accomplished utilizing the Proc Freq
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4 procedure in SAS to compute frequencies, percentages, means and standard deviations, where
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6 needed.
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10 Results

11 *Demographic Characteristics*

12 Demographic characteristics of the Combat Medics included in this study are reported in
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14 Table 1. Approximately 82% of the sample were male and roughly 60% were married or
15 separated. Approximately 64% held a rank of E1-E4. The mean age was 27.97 years (SD =
16 6.12). Most were relatively educated, with over 70% having attained at least some college
17 education. In terms of deployment, most soldiers had just completed their second tour of duty to
18 OEF/OIF, with over 97% returning from Iraq.
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30 *Training and Deployment Preparation*

31 As depicted in Table 2, 59.9% of Combat Medics assigned to line units felt adequately
32 trained to work the shifts required during deployment; and 68.0% reported that they had all the
33 supplies needed to get their job done. While upwards of 80% felt they received adequate training
34 on how to use the equipment; 77% felt that the equipment functioned the way it was intended.
35
36 Over 80% of the Combat Medics felt they knew how to treat most animal, insect, and plant
37 issues in the region. In terms of combat, 19.6% of the Medics reported seeing as much combat as
38 expected and 40.6% indicated that they were accurately informed about what daily life would be
39 like during deployment.
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52 *Suicide Prevention and Stress Training*

53 Of the Medics surveyed, 78.1% felt confident in their ability to identify soldiers at risk
54 for suicide; with 75.8% indicating that the training was adequate. Roughly 89% reported being
55 confident in their ability to help soldiers get mental health assistance, with 56.5% of Medics
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4 reporting that the training was adequate. Combat Medics were also queried on their own use of
5 mental health counseling services within the past year. Approximately 27% had sought the
6 assistance of a mental health counselor; 16.6% from a general medical doctor; and 13.6% from a
7 combat stress control professional. 12.5% were seen by Chaplains; 4.6% sought out another
8 Solider; and 4.6% spoke with a fellow Combat Medic.
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16 In congruence to the utilization of care, Medics were asked questions regarding stigma
17 and barriers to behavioral and mental health care. Not unlike other soldiers in the Army, 40.3%
18 of Combat Medics surveyed reported that unit leadership would treat them differently, 32.6%
19 were worried other soldiers would have less confidence in them, and 30.5% reported that they
20 would be seen as weak. Logistical issues included lack of adequate transportation (4.9%),
21 difficulty scheduling an appointment (29.2%) and difficulty getting time off (25.7%). Results are
22 presented in Table 3.
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25 *Combat Experiences*
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28 Combat Experiences (DRRI) are reported in Table 4. Almost 90% of Combat Medics
29 assigned with line units went on combat patrols and most of those received some type of hostile
30 incoming fire. Roughly a third witnessed someone from their unit or an ally being seriously
31 wounded or killed enemy troops being seriously wounded or killed. While over 20% fired their
32 weapon at the enemy, roughly 8% killed or thought that they killed someone in battle. To
33 supplement the Combat Experiences Scale (DRRI), Combat Experiences (MHAT) data are
34 reported in Table 5. Of note, a large percentage of Combat Medics deployed with line units
35 provided aid to the wounded, with 41.2% saving the life of a soldier/Marine. However, 53% of
36 Combat Medics reported seeing injured women and children that they were unable to help.
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4 Additionally, over 80% of Combat Medics thought they demonstrated success in their training
5 during deployment.
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8 Combat Medics assigned to BCTs are participating in a number of soldier-centric duties
9 such as clearing and searching homes/building (57.6%) or bunkers/caves (17.6%), disarming
10 civilians (36.3%); being attacked or ambushed (57.4%); receiving small arms fire (52%);
11 working in mined areas (73.3%); and having an IED explode near them (54.5%). Overall, 52.7%
12 reported having a member of their unit become a casualty.
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15 The post-battle arena revealed another set of experiences to complement both Combat
16 Experiences Scales (Table 6). About half of Combat Medics saw civilians (53.3%), soldiers or
17 allies (49.9%) or enemy combatants (42.2%) severely wounded or disfigured in combat. Many
18 cared for the injured or dying (77.2%), while 42.4% were exposed to the sight, sound, or smell
19 of dying men and women. In terms of death, 39.2% of Combat Medics reported seeing dead
20 bodies of civilians; 35.9% saw deceased enemy combatants, and 33.4% witnessed deceased
21 soldiers/allies.
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24 **Discussion**

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26 This article presents a descriptive overview of key findings associated with Combat
27 Medic training from the first year of a three year longitudinal study on U.S. Army Combat Medic
28 resilience with a focus on training and deployment preparation and types of combat experiences
29 endured. Findings showed that Combat Medics reported being well-trained and capable of
30 performing their mission during combat operations. However, other intangible elements of
31 modern day combat infuse an ever-changing element into the mission that Medics must learn to
32 overcome. This includes the types of shifts required during deployment, intensity and frequency
33 of combat, and the ubiquitous nature of daily life on the front lines. While training on equipment
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4 was perceived as adequate, about a third reported that the equipment did not function the way it
5 was intended and that they lacked needed supplies. While the issues of malfunctioning
6 equipment and lack of supplies may be beyond the purview of the DCMT, of particular concern
7 is that only 20% of medics who had deployed with a line unit reported seeing as much combat as
8 expected. While it is unknown just how much combat those medics saw, it was as much as they
9 expected. The focus, however, is on the remaining 80%. While it is unknown if the remaining
10 80% saw more or less combat than expected, seeing more combat certainly carries a greater
11 burden than seeing less. Unfortunately, the question, as currently stated, does not provide an
12 answer. Therefore, it is suggested that future research clarify this issue by adding a question such
13 as "I saw more combat than I expected" or "I saw less combat than I expected." This is
14 important, as it may be that soldiers who report experiencing as much combat as expected are
15 better prepared mentally when they arrive in theatre, and this could possibly serve as a protective
16 factor. A second finding is that 40% indicated that they were accurately informed about what
17 daily life would be like during deployment. While the diffuse nature of combat, unit types,
18 regions of war etc, makes it difficult to explain 'daily life' for any particular soldier in a war
19 zone, it may be prudent to depict such conditions -- be it environmental, physical, or mental -- as
20 closely as possible. Another alternative would be to have a recent graduate return to the school to
21 provide a very real account of what the Medic has experienced, allowing for questions and
22 answers from the current graduating class. This recommendation would be in addition to the
23 combat veterans who are already teaching the Combat Medic courses. Addressing these two
24 issues may be necessary in future training of Combat Medics to insure optimal performance.

55 Combat Medics felt confident in their ability to identify soldiers at risk for suicide and in
56 57 their ability to help soldiers get mental health assistance. However, fewer felt that this training
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4 was adequate. Given the Army's focus on soldier suicides coupled with the fact that Medics may
5 be called upon to serve as the moral compass or mental health counselor when elements go out
6 on foot patrol, suggests that further training in stress management and mental health care may be
7 warranted.**Error! Reference source not found.****Error! Reference source not found.** An evidence-
8 based, validated program could be utilized in preparing Medics to recognize mental health issues
9 on the battlefield from two perspectives - that of a combat soldier and that of a medical provider.
10 It is important that they receive adequate training in their ability to assess, refer, and manage
11 stress and other mental health issues, as the enlisted medic is often the frontline trauma care
12 provider. As such, an appropriate program should be specifically tailored to the Combat Medic,
13 whose dual battlefield duties are unique.

14
15 Although Medics are seeking counseling services while deployed, stigma and barriers to
16 care reported by other soldiers³ are also prevalent among Combat Medics. Because it is
17 imperative that Combat Medics be physically, mentally, and emotionally fit in order to make
18 split-second, life or death decisions, it may be necessary to more strongly encourage Medics
19 during training that seeking mental health assistance is a normal part of the job and to provide an
20 easier way for Medics to seek such care while in the field. Medics are not only vulnerable to
21 primary traumatic stress and stress injuries**Error! Reference source not found.** but also secondary
22 traumatic stress or compassion fatigue**Error! Reference source not found.** as part of their role as
23 medical service providers. Thus, needing some assistance to 'reset' should be seen as normal for
24 health care providers such as the Combat Medic rather than a sign of weakness.**Error! Reference**
25 **source not found.** It may be necessary to not only continue to address these issues in Officer and
26 NCO training curriculums, but to reiterate the importance of obtaining assistance when needed,
27 particularly during times of war.

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4 Aside from Medic-centric duties, many Combat Medics assigned to BCTs participated in
5 a number of soldier-centric duties, to include going on combat patrols, clearing and searching
6 homes/building, working in mined areas and disarming civilians. Like research on other
7 soldiers³, Combat Medics report feeling in serious danger of being injured or killed; losing close
8 friends; personally engaging or killing the enemy; and seeing civilians, soldiers, allies or enemy
9 combatants severely wounded, disfigured or killed in combat. Therefore, while it is important to
10 hone and train for medic centric duties during a time of war, the dual importance of soldier-
11 centric duties should continue to be a valued part of Combat Medic training.
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24 In evaluating findings, some limitations should be acknowledged. First, the sample
25 consisted solely of U.S. Army Combat Medics, most of which had been deployed to the theatre
26 of operations in Iraq; all had been assigned to BCTs. This may impact generalizations on several
27 fronts. Most medics were deployed to Iraq. At that particular time, the combat intensity was
28 much higher than in Afghanistan. Secondly, participants in this study were all U.S. Army
29 Combat Medics and all were deployed with line units. While it is uncertain the degree or
30 intensity of combat to which soldiers of varying military operational specialties (MOS)
31 participate or witness, it is possible that the degree or intensity of combat would differ according
32 to Brigade assignment. It is also unknown if Navy corpsmen or Air Force Medics would report
33 the same perceptions concerning training and deployment preparation or combat experiences, as
34 their training curriculum is different than that of the US Army. Additionally, the procedures were
35 designed around self-report measures. Thus, it is expected that most people are truthful when
36 they believe the research has a legitimate purpose; they have suitable privacy for providing
37 answers; they have assurances that answers will be kept confidential; and they trust those
38 collecting the data. Honest reporting was encouraged by assuring that responses were
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4 anonymous and confidential, utilizing civilian data collectors with prior military service who
5 explained the confidentiality of the data, assured participants that military personnel would not
6 have access to individual information, and required military personnel not participating in the
7 research to leave the administration room. Also, data were not collected in theatre, but were
8 collected 3 months post-deployment. Thus, the self-report data may be subject to memory errors.
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10 Fourth, soldiers were not queried as to the responses to which they provided. Therefore, it is
11 unlikely that the full story is provided in these pages. Future studies should incorporate
12 qualitative methods to tease out the results and determine meanings and reasons for responses.
13
14 Finally, the findings reported in this paper are those of Combat Medics only. It is unknown if
15 responses of the Combat Medics are significantly different from other deployed soldiers assigned
16 to BCTs or maneuvering units, such as findings published in the MHAT reports. While the
17 authors - Paula Chapman, David Cabrera, and Charles Figley - have presented preliminary
18 results of the on-going study alongside reported findings of the maneuvering units of MHAT
19 studies, a formal paper comparing behavioral mental health and combat experiences is being
20 written as a separate paper (Poster presented at the U.S. Army Force Health Protection;
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22 *Comparing Combat Medics 3 months post-deployment with MHAT findings: Preliminary*
23 *analysis of a 3-Year mixed methods study designed to build a model of resiliency*). Completing
24 and publishing that manuscript will certainly provide a more in-depth look at how well Combat
25 Medics are faring in the current conflicts compared to other soldiers.
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28 29 30 31 Conclusion 32 33

34 Combat Medics are both soldiers and professional healthcare providers, most of whom
35 choose to enter this MOS (Unpublished raw data from Escolas, S. & Chapman, P., 2011;
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37 Ameliorating Pre-Existing Risk Factors & Enhancing Protective Factors of Soldier Medics
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4 During Training). As such, they may possess an innate sense to cure, heal, and help another
5 human being; this may result in the development of conflicting feelings given their role as a
6 soldier. The military has shown considerable progress in addressing mental health care.
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8 However, challenges remain in addressing and understanding the mental health care needs of
9 soldiers. Particular to Medics, additional emphasis should be placed on 1) reducing the stigma
10 and barriers related to mental healthcare - currently a priority in the military - both in theatre and
11 garrison; and 2) developing an evidence-based, validated program for Medics and other soldiers
12 to recognize stress and mental health issues on the battlefield. For Medics, this should be from
13 two perspectives - that of a combat soldier and that of a medical provider.
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Table 1: Demographic Characteristics of Combat Medic Study Group

Characteristic	3 mo. Post Deployment f (%)	Characteristic	3 mo. Post-Deployment f (%)
Sex		Primary Component	
Male	285 (82.4)	Active Duty	333 (99.7)
Female	61 (17.6)	Other	1 (0.3)
Marital Status		Grade/Rank	
Married/Separated	205 (59.6)	E-1 – E-4	222 (64.2)
Divorced	44 (12.8)	E-5 or Higher	124 (35.8)
Other	95 (27.6)	Race or Ethnicity	
Education		White	248 (72.9)
High-school or Less	97 (28.4)	Black	49 (14.4)
Some College	211 (61.7)	Other	43 (12.6)
College Graduate	34 (9.9)	Age	
		Mean	27.97
		Std. Dev	6.12

Summary statistics exclude missing data, because not all participants answered every question.

Table 2: Training and Deployment Preparation

	3 mo. Post-Deployment f (%)
I received adequate training on how to use my equipment.	278 (80.3)
I knew how to treat animal bites, insect stings, or allergic reactions to plants in the region.	278 (80.1)
The equipment I was given functioned the way it was supposed to.	266 (76.7)
I was adequately prepared to deal with the region's climate.	242 (69.7)
I had all the supplies needed to get my job done.	236 (68.0)
I was accurately informed about what to expect from the enemy.	233 (67.1)
I was adequately trained to work in the shifts required of me during my deployment.	208 (59.9)
I was informed about the role my unit was expected to play in the deployment.	193 (55.6)
When I was deployed I had a pretty good idea of how long the mission would take to complete.	177 (51.2)
I received adequate training on what to do in case a nuclear, biological, or chemical (NBC) attack.	169 (48.7)
I was accurately informed of what daily life would be like during my deployment.	141 (40.6)
I had enough gear to protect myself in case of a NBC attack	100 (28.8)
I received adequate training on how to perform daily life activities while wearing NBC protective gear.	81 (23.4)
I saw as much combat as I expected.	68 (19.6)

Summary statistics exclude missing data, because not all participants answered every question.

Frequencies and percentages reflect those that answered either *somewhat agree* or *strongly agree*.

Table 3: Stigma and Barriers to Care

	3 mo Post-Deployment f (%)
S: My unit leadership might treat me differently.	140 (40.3)
S: Members of my unit might have less confidence in me.	113 (32.6)
S: I would be seen as weak.	106 (30.5)
B: It is difficult to schedule an appointment.	101 (29.2)
B: There would be difficult getting time off for treatment.	89 (25.7)
S: My visit would not remain confidential.	85 (24.5)
S: It would harm my career.	74 (21.3)
B: My leaders discourage the use of mental health services.	25 (7.2)
B: I don't have adequate transportation.	17 (4.9)
B: I don't know where to get help.	10 (2.9)

Summary statistics exclude missing data, because not all participants answered every question.
 S=Stigma; B=Barriers to Care. Frequencies and percentages reflect those that answered either *agree* or *strongly agree*.

Table 4: Combat Experiences

	3 mo. Post-Deployment f (%)
I went on combat patrols or missions	311 (89.6)
I or members of my unit received hostile incoming fire from small arms, artillery, rockets, mortars or bombs.	288 (83.0)
I or members of my unit were attacked by terrorists or civilians.	236 (68.0)
I or members of my unit encountered land or water mines and/or booby traps.	206 (59.5)
I was in a vehicle (for example, a truck, tank, APC, helicopter, plane or boat) that was under fire.	146 (42.1)
I personally witnessed someone from my unit or an ally being seriously wounded or killed.	120 (36.4)
My unit engaged in a battle in which it suffered casualties.	118 (34.0)
I personally witnessed soldiers from enemy troops being seriously wounded or killed.	116 (33.4)
I fired my weapon at the enemy.	71 (20.5)
I or members of my unit received "friendly" incoming fire from small arms, artillery, rockets, mortars, or bombs.	46 (13.3)
I was part of a land or naval artillery unit that fired on the enemy.	43 (12.4)
I killed or think I killed someone in combat.	29 (8.4)
I was part of an assault on entrenched or fortified positions.	28 (8.1)
I took part in an invasion that involved naval and/or land forces.	21 (6.1)
I was wounded or injured in combat.	17 (4.9)

Summary statistics exclude missing data, because not all participants answered every question. Frequencies and percentages reflect those that provided a *yes* response.

Table 5: Combat Exposures

	3 mo. Post-Deployment f (%)
Provided aid to the wounded.	285 (82.6)
Encountered grateful civilians.	283 (81.8)
Demonstrated success in your training.	274 (80.4)
Working in areas that were mined or had IEDs.	253 (73.3)
Seeing dead bodies or human remains	231 (67.2)
Seeing destroyed homes and villages.	224 (65.1)
Receiving incoming artillery, rocket, or mortar fire.	222 (64.0)
Knowing someone seriously injured or killed.	208 (60.5)
Having hostile reactions from civilians.	202 (58.2)
Clearing/searching homes or buildings.	200 (57.6)
Being attacked or ambushed.	197 (57.4)
Seeing dead or seriously injured Americans.	197 (57.3)
Improvised explosive device (IED)/ booby trap exploded near you.	188 (54.5)
Having a member of your own unit become a casualty.	183 (52.7)
Seeing ill/injured women or children who you were unable to help.	183 (53.0)
Receiving small arms fire.	178 (52.0)
Witnessing violence within the local population or between ethnic groups.	165 (48.0)
Handling or uncovering human remains.	157 (45.5)
Being in threatening situations where you were unable to respond because of rules of engagement.	143 (41.3)
Saved the life of a Soldier/Marine or civilian.	141 (41.2)
Witnessing an accident which resulted in serious injury or death.	131 (38.0)
Disarming civilians.	126 (36.3)
Had a close call/dud landed near you.	123 (35.5)
Shooting or directing fire at the enemy.	93 (26.9)
Successfully engaged the enemy.	85 (24.7)
Participating in demeaning operations.	81 (23.6)
Clearing/searching caves or bunkers.	61 (17.6)
Had a buddy shot or hit who was near you.	50 (14.5)
Being wounded or injured.	26 (7.5)
Informed unit members/friends of a Soldier's/Marine's death.	24 (6.9)
Calling in fire on the enemy.	15 (4.3)
Had a close call/ equipment shot off your body.	13 (3.8)
Engaging in hand-to-hand combat.	10 (2.9)
Had a close call/was shot or hit but protective gear saved you.	9 (2.6)
Being responsible for the death of US or ally personnel.	1 (0.3)

Summary statistics exclude missing data, because not all participants answered every question. Frequencies and percentages reflect those that had experienced the particular situation at least once in their most recent deployment.

Table 6: Post-Battle Experiences

	3 mo. Post-Deployment f (%)
I took care of injured or dying people.	267 (77.2)
I saw people begging for food.	249 (71.8)
I observed homes or villages that had been destroyed.	220 (63.4)
I saw civilians after they had been severely wounded or disfigured.	185 (53.3)
I saw Americans or allies after they had been severely wounded or disfigured in combat.	173 (49.9)
I was exposed to the sight, sound, or smell of animals that had been wounded or killed from war-related causes.	159 (45.8)
I or my unit took prisoners of war.	152 (43.8)
I was exposed to the sight, sound, or smell of dying men and women.	147 (42.4)
I saw enemy Soldiers after they had been severely wounded or disfigured in combat.	146 (42.2)
I interacted with enemy Soldiers who were taken as prisoners of war.	138 (39.8)
I saw the bodies of dead civilians.	136 (39.2)
I saw bodies of dead enemy Soldiers.	124 (35.9)
I saw bodies of dead Americans or allies.	116 (33.4)
I saw refugees who had lost their homes and belongings as a result of battle.	111 (32.0)
I was involved in removing dead bodies after battle.	66 (19.1)

Summary statistics exclude missing data, because not all participants answered every question. Frequencies and percentages reflect those that provided a *yes* response.

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4 Research Funded by Military Operational and Medical Research Program [W81XWH-09-1-
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6 00655 Prop # 9086003 Cabrera, PI]. For more information on this study, contact Paula Chapman,
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4 We wish to acknowledge COL Sharon Reese and MAJ(P) Felicia Rivers at Darnel Hospital, as
5
6 well as the Combat Medics who participated in this research. Without their support, this
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8 research could not have been conducted.
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Dear Editor:

Attached is the revised manuscript entitled 'Training, Deployment Preparation, and Combat Experiences of Deployed Health Care Personnel: Key Findings From U.S. Army Combat Medics Deployed with Line Units'. Thank you for granting us the opportunity to submit revisions to our original manuscript. To incorporate the changes requested the word count has increased to 4,171 (the original word count was 4,030). I have responded to reviewer comments below and used track changes in the manuscript body document.

Reviewer #1:

Thank you for your kind comments. You mentioned the results on page 11, where 20% of medics report that they saw as much combat as they expected. The point here is that 20% saw what was expected and thus the amount of combat experienced was not something that was surprising to them. The concern is really with the 80% - a large percentage of the sample - who did not see as much combat as expected. You are correct in that it is unknown if they saw more or less combat than expected and we have taken your excellent suggestion and incorporated that into the paper. The concern for this group arises from the literature on one's expectations and how they shape us mentally, particularly for war. Those who saw what they expected probably had one less 'surprise' in which to adapt, as opposed to the others. We feel that this is important, as generally knowing what to expect may serve as a protective factor for some soldiers.

Reviewer #2:

Thank you for your comments. We have explained a bit more why this may not be generalizable across the board to other Soldiers and Service members. It basically comes down to tempo and combat intensity during the time participants were deployed to Iraq as opposed to Afghanistan, different MOS's and their missions, and differences in Service branches.

You reference our comment that Medics should receive a training program "specifically tailored" to the Combat Medic (pg. 12). Surprisingly, this was suggested by the Director at DCMT. Therefore, I suspect that there is not currently a program formatted specifically to combat medics. While it may be feasible to adapt an existing program for this purpose, it is unknown if any particular existing program would be able to meet the specific needs of combat medics, as most military-provider research and intervention work has targeted MDs and RNs. Additionally, I do have some ideas concerning a training program, but I wish to keep those close to the vest, as we are currently writing a proposal specifically for this purpose.

Best Regards,

Paula L. Chapman, Ph.D.

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Abstract

7 Objective: Describe perceptions of training and deployment preparation and combat experiences
8 and exposures of U.S. Army Combat Medics. Methods: Data were from the first year of a 3-year
9 longitudinal study designed to assess the impact of combat on the behavioral health and
10 resilience of 347 Combat Medics surveyed 3-6 months after returning from a 12-month
11 deployment to OEF/OIF theatre and assigned to Brigade Combat Teams. Results: Analyses
12 indicated that Combat Medics may benefit from better preparation in types of shifts required
13 during deployment; type and intensity of combat likely to be seen and experienced; more
14 adequate training in the area of stress and mental health care management; and easier access to
15 behavioral mental health care. Conclusions: The military has shown considerable progress in
16 addressing and understanding the mental health care needs of Soldiers. However, challenges
17 remain. Additional emphasis should be placed on reducing the stigma and barriers related to
18 mental healthcare both in theatre and garrison; and developing an evidence-based, validated
19 program for Medics and other Soldiers to recognize stress and mental health issues on the
20 battlefield. For Medics, this should be from two perspectives - that of a combat Soldier and that
21 of a medical provider.

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Appendix B

Manuscripts under review

Chapman, P., Baker, M., Cabrera, D., Varela-Mayer, C., Elnitsky, C., Figley, C., Thurman, R., Lin, Chii-Dean, & Mayer, P. (2011). *Mental health, stigma, and barriers to care: Key findings from U.S. Army combat medics deployed with line units*. Manuscript submitted for publication.



Mental Health, Stigma, and Barriers to Care: Key Findings from U.S. Army Combat Medics Deployed with Line Units

Journal:	<i>Journal of Traumatic Stress</i>
Manuscript ID:	Draft
Wiley - Manuscript type:	Research Article
Date Submitted by the Author:	n/a
Complete List of Authors:	Chapman, Paula; James A. Haley Veterans Administration Center of Excellence, Baker, Monty; Lackland Air Force Base, Behavioral Analysis Service Cabrera, David; Uniformed Services University, Varela-Mayer, Christine; Tampa VA Research and Education Foundation, Elnitsky, Christine; James A. Haley Veterans Administration Center of Excellence, Figley, Charles; Tulane University Traumatology Institute, Thurman, Ryan; James A. Haley Veterans Administration Center of Excellence, Lin, Chii-Dean; San Diego University, Mathematics & Statistics Mayer, Paul; Department of Combat Medic Training, Military Education and Training Center,
Keyword - Topics:	Health Care Utilization, Psychological assessment, Complex PTSD/DESNOS, Depression, Resilience/posttraumatic growth
Keywords - Trauma Exposure:	War/armed conflict in military role
Keyword - Statistical Categories:	Logistic Regression, Anova/Manova
Keyword - Intervention:	
Keyword - Special Populations:	Military (active duty/veteran), Emergency personnel

SCHOLARONE™
Manuscripts

Running Head: MENTAL HEALTH, STIGMA, BARRIERS TO CARE

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Mental Health, Stigma, and Barriers to Care: Key Findings from U.S. Army Combat Medics Deployed with Line Units

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Abstract

The U.S. Army Combat Medic serves as both soldier and trauma care provider—often in the heat of battle, with limited resources, and under enormous stress. Participants completed a survey containing measures of mental health service utilization, perceived stigma and barriers to care, and depression and stress symptoms. This study provides an initial assessment of mental health, stigma, and barriers to care among combat medics, as categorized into three groups: medics surveyed 3 months after returning from OEF/OIF; medics surveyed 12 months after returning from OEF/OIF; and as a comparison group, medics who had never deployed to OEF/OIF. The proportion of medics receiving help from a mental health professional ranged from 18-30%, with previously-deployed medics more likely to obtain assistance than the comparison group. Associations were observed for stress and depression among medics who had deployed, compared to those who had never deployed. Medics screening positive for mental health issues were more likely to report concerns about stigma and barriers to care than those who screened negative. Findings indicate that depression may be a more salient issue than stress, and that combat medics report similar stigma and barriers to care frequencies to those found in previous studies.

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3 Mental Health, Stigma, and Barriers to Care: Key Findings from U.S. Army Combat Medics
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5 Deployed with Line Units
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78 It has been reported that service members experiencing behavioral health problems
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10 underutilize mental healthcare due to factors of stigma, logistical barriers, institutional barriers,
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12 and negative beliefs about treatment (Greene-Shorridge, Britt, & Castro, 2007; Hoge et al.,
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14 2004; Kim, Thomas, Wilk, Castro, & Hoge, 2010; Warner, Appenzeller, Mullen, Warner, &
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16 Grieger, 2008; Wright et al., 2009). Within the military culture of self-sufficiency and mission-
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18 readiness, help-seeking is often stigmatized, particularly for male soldiers (Pietrazak, Johnson,
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20 Goldstein, Malley, Southwick, 2009a; Vogt, 2011). This stigmatization can influence treatment-
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22 seeking decisions interpersonally (distance with unit members), intrapersonally (feeling
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24 embarrassed or weak), and professionally (leadership discrimination, being perceived as less fit
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26 for duty; Vogt, 2011). Further, service members report a lesser likelihood of following through
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28 with psychological referrals compared to medical referrals (Britt et al., 2008).
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3132 Those with the most severe mental health symptomology also endorse the greatest
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34 concerns of being stigmatized (Hoge et al., 2004; Kim et al., 2010; Britt et al., 2008; Pietrazak, et
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36 al., 2009a). In addition to a fear of being stigmatized, researchers have sought to identify
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38 situational barriers to health seeking related to resources, limitations of time, and mistrust of
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40 military health services (Fikretoflu, Guay, Pedlar, & Brunet, 2008). To date, no studies have
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42 investigated perceptions of mental healthcare among combat medics.
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4546 Combat medics are an integral part of the mission, and thus are an important group to
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48 study. They provide frontline trauma care, often in the heat of a battle, with limited resources and
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50 under enormous stress. In modern warfare, they must be able to transition from the role of soldier
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52 to medic quickly and decisively in accordance with the tactical situation. Thus, medics are
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1 MENTAL HEALTH, STIGMA, BARRIERS TO CARE

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3 required to cope not only with the emotional burden associated with the responsibility of
4 maintaining the health and well-being of all soldiers, but also with the potentially life-threatening
5 situations of war that many soldiers from many different military occupational specialties (MOS)
6 must endure. The purpose of the current study was to examine mental health and stigma and
7 barriers to care perceived by combat medics. The proportion of soldiers reporting functional
8 issues associated with stress and depression symptoms was identified; utilization of mental
9 health services was assessed; and perceived stigma and barriers to care were addressed.

10 **Methods**11 **Participants**

12 Data are from the first year of an ongoing longitudinal study designed to assess the impact
13 of combat on behavioral health and resilience of U.S. Army combat medics. Participation was open
14 to all Europe- and Ft. Hood-based combat medics who met the eligibility requirements. The sample
15 consisted of 799 combat medics—385 attached to military installations across Europe and
16 414 stationed at Fort Hood, Texas. These medics were categorized into three groups: 347
17 medics surveyed 3 months after returning from a 12-month deployment to Iraq or Afghanistan
18 (where they were assigned to line units); 196 medics surveyed 12 months post-deployment (also
19 assigned to line units); and 256 medics who had never been deployed with a line unit to a
20 theatre of operations. The latter group served as a comparison group to which the others are
21 compared. The non-deployed group, while not deployed to a theatre of operations within the
22 past 12 months, provided support across Europe.

23 **Eligibility and Recruitment of the Sample**

24 The study was conducted under a protocol approved by the Brooke Army Medical Center
25 Institutional Review Board. U.S. Army combat medics stationed in Europe or Fort Hood during the
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initial year of the study and agreeing to complete follow-up surveys were eligible to participate.

Data were collected between November 2009 and May 2010. Identification and enrollment of participants followed a three-step process. First, European Regional Medical Command (ERMC) and Fort Hood staff identified combat units with medics meeting the eligibility criteria. Next, research team members visited each installation to recruit from identified elements. Finally, eligible participants attended a briefing, during which they were informed about the study and provided with the opportunity to ask questions regarding the study. Written informed consent containing statements about the purpose of the survey, the voluntary nature of participation, and the methods used to ensure participants' confidentiality and anonymity was obtained. The response rate was 96%. The proportion of missing values was generally less than 5% by item and 10% by measure.

Survey Measures and Mental Health Outcomes

Participants completed a survey containing demographic items and measures of mental health service utilization, perceived stigma and barriers to care, and depression and stress symptoms. Similar measures have been utilized in previous MHAT studies (Hoge et al., 2004; U.S. Army, 2008). Use of mental health services was measured by asking participants if they had received counseling/mental health services for a stress, emotional, alcohol, or family problem within the past year from a mental health professional, combat stress control professional, general medical doctor, military chaplain, medic in your unit, or another soldier/Marine (other than a medic). Mental health services utilization responses were dichotomized into a yes/no format. Source of services was reported as "mental health professional" or "any other help". Perceived stigma and barriers to care each consisted of five items. Participants were asked to rate each concern that might affect the decision to receive mental health counseling or service. Responses ranged from

1 MENTAL HEALTH, STIGMA, BARRIERS TO CARE

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3 *strongly disagree* to *strongly agree*, with *agree* and *strongly agree* combined as a positive
4 response.
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7 Depressive symptoms were measured with the Patient Health Questionnaire (PHQ-9;
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9 Spitzer, Kroenke, & Williams, 1999). Participants were asked to indicate how bothersome each
10 symptom had been in the past two weeks using a 4-point scale. Responses were *not at all*, *several*
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12 *days, more than half the days*, and *nearly every day*. Spitzer and colleagues (1999) recommend
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14 using a cutoff score of 10 or greater, which has sensitivity for major depression of 88%, a
15 specificity of 88%, and a positive likelihood ratio of 7.1.
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1718 Posttraumatic Stress symptoms were measured with the PTSD CheckList (PCL). The PCL is
19 a 17-item self-report rating scale designed by the Department of Veterans Affairs' National Center
20 for PTSD to evaluate PTSD symptom categories (Weathers, Litz, Herman, Huska, & Keane, 1993;
21 American Psychiatric Association, 1994). Respondents indicated how bothered they had been in the
22 past month utilizing a 5-point scale ranging from *Not at all* to *Extremely*. Results were scored as
23 positive if participants rated at least one intrusion symptom, three avoidance symptoms and two
24 hyperarousal symptoms at the moderate level or higher. The psychometric properties of this
25 measure are well established in the literature (Blanchard, Jones-Alexander, Buckley, & Forneris,
26 1996; Bliese et al., 2008; Forbes, Creamer, & Biddle, 2001).
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2829 **Quality Control Procedures and Analysis**
3031 Surveys were designed with the use of Teleform software, which allows for data
32 processing and verification (Teleform, Version 10). The Teleform system provides a variety of
33 quality control mechanisms to help establish a high level of accuracy and integrity for the study
34 data. During the final stage of quality control, exported data was processed using SAS software
35 (version 9.4) in order to identify and handle any potential outlier and/or missing values. This
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overall strategy resulted in a data entry error rate of less than 1%. SPSS (version 19.0) was used to conduct all analyses, including multiple logistical regressions where differences in demographic characteristics were statistically controlled.

Results

Demographic characteristics for each group are provided in Table 1. Of particular note, groups differed by age, sex, rank, education, and marital status. Soldiers in the 12-month post-deployment group were more likely to hold higher rank and to not be single than either the 3-month post-deployment group or the never deployed group. Overall, combat medics are a highly educated group compared to Army soldiers in general (U.S. Army, 2011).

Mental Health

Combat medics 3 months post-deployment were more likely to report a functional issue than those who had never deployed. This significant difference, however, was only observed for stress, and not depression. Approximately 18-30% of all medics received help in the past year from a mental health professional, with both groups of previously deployed medics significantly more likely to obtain assistance than those who had never deployed (Table 2). Significant associations were observed for depression and stress between combat medics 3 months post-deployment and those who had never deployed. When comparing combat medics 12 months post-deployment to those who had never deployed, significant associations were found only for depression. Findings remained significant after utilizing logistic regression to control for demographic variables of age, gender, grade/rank, education, and marital status.

Perceived Stigma/Barriers to Care

Frequencies of combat medics who met the screening criteria for a mental disorder and their responses to perceived stigma and barriers to care are provided in Table 3. The proportion

1 MENTAL HEALTH, STIGMA, BARRIERS TO CARE

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of medics reporting concerns about being stigmatized and about other barriers to accessing and receiving mental health services was generally twice as high for those who met the screening criteria compared to those who did not. For all medics, difficulty scheduling an appointment and difficulty getting time off were the two most frequently endorsed barriers to care. Additionally, there were significant differences in the endorsements between medics who met the screening criteria for a mental disorder and those who did not met the screening criteria. In terms of stigma associated with seeking care, leadership treating them differently (60.6%) and being seen as weak (53.8%) were the two most endorsed items.

22 **Discussion**
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Perceptions of mental health problems and barriers to seeking treatment were examined among three groups of combat medics: those surveyed 3 months post-deployment to Iraq or Afghanistan; those surveyed 12 months post-deployment to Iraq or Afghanistan, and those who had never deployed to the Iraq or Afghanistan theatres of war. Medics who had never deployed to theatres of war were somewhat younger, lower in rank, and less likely to be married than soldiers in the other groups. Overall, combat medics, regardless of group membership, appear to be a rather highly educated group, with over 70% from each group having attained at least some college education. The other demographic characteristics of the subjects in our sample closely mirrored those of the general U.S. Army population. Potential differences in demographic factors across study groups were controlled for in the analyses with the use of logistic regression.

As in previous research the percentage of participants who met the screening criteria for depression was higher among soldiers after deployment rather than before deployment (Hoge et al., 2004). Though not significant, frequencies of soldiers who met the screening criteria for depression were higher among those soldiers 3 months post-deployment

1 MENTAL HEALTH, STIGMA, BARRIERS TO CARE

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3 compared to soldiers 12 months post-deployment. Surprisingly, a different pattern emerged
4 for stress—only soldiers 3 months post-deployment were significantly different than soldiers
5 never deployed. There were no significant differences in the percentage of participants who
6 met the screening criteria for stress between soldiers never deployed and soldiers 12 months
7 post-deployment. In terms of any mental health issue, the percentage of participants that met
8 the screening criteria was significantly higher among soldiers after deployment rather than
9 before deployment. While further research should be conducted, these results seem to
10 indicate that symptoms of depression may be a driving force for the development of mental
11 health outcomes among combat medics, rather than symptoms of stress.

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Published rates of mental health issues among post-deployment military samples are similar to those observed in this study, with the exception of depression symptoms. Research has shown that the majority of persons likely to struggle with issues of stress and depression will emerge within the first three months after returning from combat, with delayed onset occurring 6-12 months post-deployment (Milliken, Auchterlonte, & Hoge, 2007; Frueh, Grubaugh, Yeager, & magruder, 2009; Andrews, Brewin, Philpott, & Stewart, 2007). Thus, administering the surveys three and twelve months after the Soldiers had returned from deployment was appropriate for investigating the long-term risk of mental health problems associated with combat. The study is ongoing, allowing us to examine this risk in longitudinal assessments involving the same units over time.

Results from this study indicate that combat medics appear to be inclined to seek mental health assistance prior to the development of a functional issue. While approximately 20% of medics who deployed with a line unit in the past 3 months reported a functional issue with either stress or depression, many more sought assistance. Particularly, the percentage

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MENTAL HEALTH, STIGMA, BARRIERS TO CARE

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seeking mental health assistance from a mental health professional was significantly higher among those post-deployment compared to those who had never deployed. This same pattern continued for any help seeking (e.g., medical doctor, combat operational stress officer, other combat medic). There were no significant differences in reported help-seeking between soldiers 3- and 12-months post-deployment.

Combat medics who need the most assistance appear to be the ones who report greater perceived barriers to mental health-seeking, as well as stigma from seeking such care. Participants reporting higher levels of symptoms had greater perceived barriers including difficulty scheduling appointments, getting time off for treatment and not having adequate transportation. Further, approximately 50% of these participants who met the screening criteria for a mental disorder reported a perceived stigma that their unit leadership might treat them differently, they would be seen as weak, and members of their unit might have less confidence in them. These findings are consistent with previous studies examining the relationship between psychological symptomatology and perceived treatment-barriers among service members and suggest that perceptions of and willingness to use care could be negatively impacted by the presence of psychological symptoms (Hoge et al., 2004; Kim et al., 2010; Wright et al., 2009; Vogt, 2011). Likewise, it could be that those service members needing care have actually initiated help-seeking activities in the past, only to realize the difficulty due to barriers and stigma. While the Army has taken steps to improve the stigma across the military, it is still very influential among soldiers, including medics, who are trained in the identification of soldiers who may need assistance, as well as where to obtain such services (Adler, Bliese, McGurk, Hoge, & Castro, 2011; Deahl et al., 2000). Certainly, additional research is needed to more fully comprehend the underpinnings of these issues.

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3 Finally, it is important that military leadership accommodate service members so they
4 can access mental health services. Currently, the focus appears to be on developing strategies to
5 change the stigma associated with seeking mental healthcare. Because of the military culture,
6 this will be a long and difficult journey; a more direct route might be for military leadership to
7 enact change in how services are delivered and received by service members rather than
8 changing the minds of others. Telemedicine technologies are more accommodating to soldier
9 schedules - particularly deployed soldiers - and would eliminate barriers such as the need for
10 excessive travel time and transportation issues. Additionally, allowing former military personnel
11 who are now trained clinicians to provide such care may not remove the stigma associated with
12 mental healthcare, but it may ease the worry that others may find out about their help-seeking.
13 With today's focus on preventing suicide, it is more important that soldiers seeking mental health
14 care have access to it and that those who need it are not afraid to seek it.

32 Limitations

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34 There are several limitations to the current study that warrant attention. First, as this is the
35 data from the first year of a study, data were cross-sectional. While longitudinal studies are more
36 powerful and revealing, the comparability of the current sample and the similarity in outcomes to
37 previous studies should provide confidence in the approach utilized for this study. Second, the
38 mental health measures utilized in this study are similar to those used in other studies conducted
39 with military populations, but they are designed to screen for symptom severity, not provide a
40 definitive diagnosis. Thus, results do not represent definitive diagnoses of PTSD and major
41 depressive disorder of persons in the military. Additionally, definitions utilized in this study for
42 screening symptoms of stress and depression, were less conservative than previous studies (Hoge
43 et al., 2004). This was done in an effort to include as many soldiers as possible so as not to
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underestimate the potential issues these soldiers may face. The nature of self-report data is always limiting. We did not collect data related to actual mental healthcare utilization, but rather self-report of assistance and help-seeking. It remains unclear whether findings generalize to actual care-seeking. Finally, it is unknown how findings generalize to non-medical personnel or to personnel involved in other conflicts. Given that medics are highly educated about health concerns, they may perceive services more favorably and be more willing to seek treatment than other service members.

Implications

The current study makes several important contributions. The results seem to initially support the notion that combat medics appear resilient to combat-related stress 12 months post-deployment, and that issues of depression may be more salient for these soldiers. In addition, our findings extend the literature examining the relationship between psychological symptomatology and perceived treatment barriers. Reducing the perception of stigma and the barriers to care among military personnel is a priority for research, policymakers, clinicians, and leaders who are involved in providing care to those who have served in the armed forces. Future research efforts should continue to evaluate the relationships among psychological symptoms, barriers to care, and mental healthcare utilization.

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For Peer Review

MENTAL HEALTH, STIGMA, & BARRIERS TO CARE

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Table 1: Demographic Characteristics of Combat Medic Study Group

Characteristic	Never Deployed n (%)	3-6 mo. Post Deployment n (%)	12 mo. Post Deployment n (%)
Grade/Rank***			
E-1 – E-4	202 (78.9)	222 (64.2)	71 (36.2)
E-5 – E-9	54 (21.1)	124 (35.8)	125 (63.8)
Age***			
Mean	25.86***	27.97***	31.32***
Std. Dev	6.01	6.16	6.36
Sex***			
Male	146 (57.3)	285 (82.4)	156 (80.4)
Female	109 (42.7)	61 (17.6)	38 (19.6)
Race or Ethnicity			
White	164 (65.1)	248 (72.9)	127 (65.8)
Black	38 (15.1)	49 (14.4)	36 (18.7)
Other	50 (19.8)	43 (12.6)	30 (15.5)
Education*			
High-school or less	67 (26.4)	97 (28.4)	36 (18.8)
Some college	173 (68.1)	211 (61.7)	144 (75.4)
College graduate	14 (5.5)	34 (9.9)	11 (5.8)
Marital Status***			
Not married	95 (37.4)	95 (27.6)	32 (16.4)
Married/Separated	144 (56.7)	205 (59.6)	140 (71.8)
Divorced	15 (5.9)	44 (12.8)	23 (11.8)

Summary statistics exclude missing data, because not all participants answered every question. Percentages are

based off the total number of answers per respondent's characteristic deployment.

A one-way ANOVA was used to compare age across the groups. All other statistical comparisons were done using the Chi-squared test. * = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$.

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10 MENTAL HEALTH, STIGMA, & BARRIERS TO CARE

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13 Table 2: Perceived Mental Health Problems and Percentage of Subjects Who Met Screening Criteria for Depression and Stress

Deployment Status	Never Deployed (n=256)	3 months PD (n=347)	OR (95% CI)	12 months PD (n=196)	OR (95% CI)
Perceived Functional Issue					
Stress	17/209 (8.1)	37/278 (13.3)*		18/183 (9.8)	
Depression	13/224 (5.8)	25/319 (7.8)		11/185 (5.9)	
Received help in past year					
Mental Health Professional	45/256 (17.6)	93/347 (26.8)	1.72(1.15-2.56)**†	58/196 (29.6)	1.97(1.26-3.07)**†
Any Other Help	65/256 (25.4)	136/347 (39.2)	1.88(1.32-2.69)***†	75/196 (38.3)	1.84(1.23-2.76)**†
Mental Health Issue					
Depression (PHQ)	22/256 (8.6)	57/347 (16.4)	2.09 (1.24-3.52)**†	30/196 (15.3)	1.92 (1.07-3.45)*†
PTSD (PCL)	16/255 (6.3)	43/347 (12.4)	2.11 (1.16-3.84)*†	21/196 (10.7)	1.79 (0.91-3.52)
Any of Above	25/255 (9.8)	70/347 (20.2)	2.32 (1.43-3.79)***†	37/196 (18.9)	2.13 (1.23-3.68)**†

35 All chi-squared comparisons are done relative to the Never Deployed group, with * = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$.36
37 † The results remained significant after multiple logistic regression was used to control for age, rank, gender, educational level, and marital status.38
39 Data exclude missing values, because not all participants answered every question.40
41 PTSD denotes post-traumatic stress disorder, PHQ Patient Health Questionnaire, and PCL PTSD Checklist.

Table 3: Perceived Barriers to Seeking Mental Health Services among All Study Participants.

Perceived Barrier	Met Screening Criteria for a Mental Disorder (N=132)	Did Not Meet Screening Criteria for a Mental Disorder (N=666)
	no./total no. (%)	
It is difficult to schedule an appointment.	54/132 (40.9)***	133/664 (20.0)
There would be difficulty getting time off for treatment.	54/131 (41.2)***	126/665 (18.9)
I don't have adequate transportation.	15/132 (11.4)**	33/666 (5.0)
My leaders discourage the use of mental health services.	11/132 (8.3)*	24/666 (3.6)
I don't know where to get help.	7/132 (5.3)	18/665 (2.7)
Perceived Stigma		
My unit leadership might treat me differently.	80/132 (60.6)***	209/665 (31.4)
I would be seen as weak.	71/132 (53.8)***	172/666 (25.8)
Members of my unit might have less confidence in me.	66/132 (50.0)***	196/666 (29.4)
My visit would not remain confidential.	48/132 (36.4)***	146/666 (21.9)
It would harm my career.	44/132 (33.3)***	122/665 (18.3)

48 Data exclude missing values, because not all participants answered every question. Participants were asked to rate
49

50 "each of the possible concerns that might affect your decision to receive mental health counseling or service."

51 Perceived barriers are worded as on the survey. The five possible responses ranged from "strongly disagree" to

52 "strongly agree," with "agree" and "strongly agree" combined as a positive response

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56 * = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$

Appendix C

Poster Presentations

Pitts, B., Thurman, R., Varela, C., Chapman, P. (2011, November). *The soldier medic mettle study: Perceptions of training and combat experiences*. Poster presented at the 19th Annual Poster Session of Association of Military Surgeons of the United States, San Antonio, TX.

Varela, C., Thurman, R., Pitts, B., Chapman, P. (2011, November). *Stigma and barriers to care among Army combat medics*. Poster presented at the 19th Annual Poster Session of Association of Military Surgeons of the United States, San Antonio, TX.



THE SOLDIER MEDIC METTLE STUDY:

PERCEPTIONS OF TRAINING AND COMBAT EXPERIENCES



Barbara Pitts, MSc; Ryan Thurman, BA; Christine Varela, MA; Paula Chapman, PhD; David Cabrera, PhD; & Charles Figley, PhD.

ABSTRACT

Little is known about the exemplar group of service members charged with the behavioral health and well-being of other service members while on the front lines – enlisted combat medical personnel. Combat Medics serve a vital role in war zones, constantly placing themselves in danger by providing first aid and frontline trauma care on the battlefield, while also serving their role as a soldier. The objective of this poster is to describe the perceptions of training, deployment preparation and types of combat experiences of deployed U.S. Army Combat Medics. Preliminary results suggest that medics feel well prepared and capable of performing their role in the field, however many report being uninformed of what combat would actually be like. A wide range of combat experiences are reported. The results of this research have far-reaching effects, for educators and leaders who can better prepare future Combat Medics for service in combat zones, and for better understanding their unique behavioral health needs.

INTRODUCTION

For the U.S. Army, pre-hospital trauma care on the battlefield is most commonly provided by the Combat Medic.

Due to the unpredictable and sometimes harsh nature of war, Combat Medics must take into account uncontrollable factors such as incoming hostile fire, contact with enemy forces, darkness, resource limitations, prolonged evacuation times, unique battlefield casualty transportation issues, command and tactical decisions affecting health care, extreme environments, and provider experience levels.

Training includes 16 weeks of extensive training to treat soldiers in a tactical environment, as well as lectures, demonstrations, hands-on practical exercises, and a scenario-based combined Field Training Exercise. In addition Medics have a curriculum that includes Emergency Medical Technician-Basic course (EMT-B), limited primary care, and tactical medicine.¹

As important as Combat Medics are to the U.S. Army, relatively little is known about how well-prepared they are for the battlefield as well as the combat experiences they endure.

METHODS

This is the first year of a 3-year longitudinal study designed to assess the impact of combat on the behavioral health and resilience of U.S. Army Combat Medics. To be eligible participants must be a U.S. Army Combat Medics stationed in Europe or Fort Hood, Texas during the initial year of the study; who agreed to complete follow-up surveys. At the end of time 1 data collection there were 841 Combat Medics; 385 were attached to military installations across Europe, and 456 at Fort Hood, TX. Of these participants most were deployed to Iraqi theatre of operations, and all had been assigned to Brigade Combat Teams (BCTs). The focus is currently on the 347 Combat Medics surveyed 3 months after returning from a 12 month deployment to OEF/OIF theatre. The measures to survey the participants include the MHAT and *Manual for Deployment Risk and Resilience Inventory* (DRRI).

PURPOSE

To assess perception of training and combat experiences of combat medics deployed with a line unit.

TRAINING AND DEPLOYMENT PREPARATION	3 MO. POST-DEPLOYMENT f (%)
I received adequate training on how to use my equipment.	278 (80.3)
I knew how to treat animal bites, insect stings, or allergic reactions to plants in the region.	278 (80.1)
The equipment I was given functioned the way it was supposed to.	266 (76.7)
I was adequately prepared to deal with the region's climate.	242 (69.7)
I had all the supplies needed to get my job done.	236 (68.0)
I was accurately informed about what to expect from the enemy.	233 (67.1)
I was adequately trained to work in the shifts required of me during my deployment.	208 (59.9)
I was informed about the role my unit was expected to play in the deployment.	193 (55.6)
When I was deployed I had a pretty good idea of how long the mission would take to complete.	177 (51.2)
I received adequate training on what to do in case a nuclear, biological, or chemical (NBC) attack.	169 (48.7)
I was accurately informed of what daily life would be like during my deployment.	141 (40.6)
I had enough gear to protect myself in case of a NBC attack	100 (28.8)
I received adequate training on how to perform daily life activities while wearing NBC protective gear.	81 (23.4)
I saw as much combat as I expected.	68 (19.6)

COMBAT EXPERIENCES & POST DEPLOYMENT	3 MO. POST-DEPLOYMENT f (%)
I went on combat patrols or missions	311 (89.6)
I or members of my unit received hostile incoming fire from small arms, artillery, rockets, mortars or bombs.	288 (83.0)
Provided aid to the wounded.	285 (82.6)
Demonstrated success in your training.	274 (80.4)
Working in areas that were mined or had IEDs.	253 (73.3)
I or members of my unit were attacked by terrorists or civilians.	236 (68.0)
Seeing dead bodies or human remains.	231 (67.2)
Clearing/searching homes or buildings	200 (57.6)
Being attacked or ambushed.	197 (57.4)
Improvised explosive device (IED)/booby trap exploded near you.	188 (54.5)
Seeing ill/injured women or children who you were unable to help.	183 (53.0)
Having a member of your own unit become a casualty.	183 (52.7)
Receiving small arms fire.	178 (52.0)
Saved the life of a Soldier/Marine or civilian.	141 (41.2)
I personally witnessed someone from my unit or ally being seriously wounded or killed.	120 (36.4)
My unit engaged in battle in which it suffered casualties.	118 (34.0)
I fired my weapon at the enemy.	71 (20.5)
Clearing/searching caves or bunkers.	61 (17.6)
I killed or think I killed someone in combat.	29 (8.4)

RESULTS

Training and Deployment Preparation

- 59.9% of Combat Medics felt adequately trained to work the shifts required during deployment; 68.0% reported that they had all the supplies needed to get their job done.
- 80% felt they received adequate training on how to use the equipment; 77% felt that the equipment functioned the way it was intended.
- Over 80% felt they knew how to treat most animal, insect, and plant issues in the region. In terms of combat, 19.6% of the Medics reported seeing as much combat as expected and 40.6% indicated that they were accurately informed about what daily life would be like during deployment.

Combat Experiences

- 90% went on combat patrols and most of those received some type of hostile incoming fire; Roughly a third witnessed someone from their unit or an ally being seriously wounded or killed.
- Over 20% fired their weapon at the enemy; Roughly 8% killed or thought that they killed someone in battle.

Of note, a large percentage provided aid to the wounded:

- 41.2% saving the life of a soldier/Marine; 53% reported seeing injured women and children that they were unable to help; over 80% of Combat Medics thought they demonstrated success in their training during deployment.
- Combat Medics assigned to BCTs are participating in a number of soldier-centric duties

CONCLUSION

Combat Medics are both soldiers and professional healthcare providers, most of whom choose to enter this MOS (Unpublished raw data from Escolas, S. & Chapman, P., 2011; Ameliorating Pre-Existing Risk Factors & Enhancing Protective Factors of Soldier Medics During Training). As such, they may possess an innate sense to cure, heal, and help another human being; this may result in the development of conflicting feelings given their role as a soldier. The military has shown considerable progress in addressing mental health care. However, challenges remain in addressing and understanding the mental health care needs of soldiers. Particular to Medics, additional emphasis should be placed on 1) reducing the stigma and barriers related to mental healthcare - currently a priority in the military - both in theatre and garrison; and 2) developing an evidence-based, validated program for Medics and other soldiers to recognize stress and mental health issues on the battlefield. For Medics, this should be from two perspectives - that of a combat soldier and that of a medical provider.

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Stigma and Barriers to Care Among Army Combat Medics

Christine Varela-Mayer, MA; Ryan M. Thurman, BA; Barbara Pitts, MA; Paula L. Chapman, PhD; Maj Monty Baker, PhD; MAJ David Cabrera, PhD; Christine Elnitsky, PhD; Charles Figley, PhD; & LTC Paul Mayer, MD

Introduction

The current OEF/OIF conflict is presenting the U.S. Army with a unique challenge in preserving the mental health of its Soldiers. Mental health care services are underutilized due to stigma, logistical and institutional barriers, as well as negative beliefs about treatment.

Purpose

- To examine mental health, stigma, and barriers to care among Combat Medics previously deployed to OEF/OIF theatres.
- Identify the proportion of Combat Medics reporting functional issues associated with depressive symptoms and stress.

Methods

This is a 3 year longitudinal study, with quantitative cross-sectional data collected from 3 groups: 3-6 months post-deployment, 6-12 months post-deployment, and never deployed.

Select measures from the Manual for the Deployment Risk and Resilience Inventory (DRRI)¹ and the Mental Health Advisory Team (MHAT)² were utilized.



Table 1: Demographic Characteristics of Combat Medic Study Group

Characteristic	Never Deployed n (%)	3-6 mo. Post Deployment n (%)	12 mo. Post Deployment n (%)	Characteristic	Never Deployed n (%)	3-6 mo. Post Deployment n (%)	12 mo. Post Deployment n (%)
Grade/Rank***							
E-1 – E-4	202 (78.9)	222 (64.2)	71 (36.2)	Male	146 (57.3)	285 (82.4)	156 (80.4)
E-5 – E-9	54 (21.1)	124 (35.8)	125 (63.8)	Female	109 (42.7)	61 (17.6)	38 (19.6)
Marital Status***							
Not married	95 (37.4)	95 (27.6)	32 (16.4)	White	164 (65.1)	248 (72.9)	127 (65.8)
Married/Separated	144 (56.7)	205 (59.6)	140 (71.8)	Black	38 (15.1)	49 (14.4)	36 (18.7)
Divorced	15 (5.9)	44 (12.8)	23 (11.8)	Other	50 (19.8)	43 (12.6)	30 (15.5)
Education*							
High school or less	67 (26.4)	97 (28.4)	36 (18.8)	Mean	25.86***	27.97***	31.32***
Some college	173 (68.1)	213 (61.7)	144 (75.4)	Std. Dev	6.01	6.16	6.36
College graduate	14 (5.5)	34 (9.9)	11 (5.8)				

Table 2: Perceived Mental Health Problems and Percentage of Subjects Who Met Screening Criteria for Depression and Stress

Deployment Status	Never Deployed (n=256) no./total (%)	3 months PD (n=347) no./total (%)	OR (95% CI)	12 months PD (n=196) no./total (%)	OR (95% CI)
Perceived Functional Issue					
Stress	17/209 (8.1)	37/278 (13.3)*		18/183 (9.8)	
Depression	13/224 (5.8)	25/319 (7.8)		31/185 (5.9)	
Received help in past year					
Mental Health Professional	45/256 (17.6)	93/347 (26.8)	1.72 (1.15-2.56)**†	58/196 (29.6)	1.97 (1.26-3.07)***
Any Other Help	65/256 (25.4)	136/347 (39.2)	1.88 (1.32-2.69)***	75/196 (38.3)	1.84 (1.23-2.76)***
Mental Health Issue					
Depression (PHQ)	22/255 (8.6)	57/347 (16.4)	2.09 (1.24-3.52)***	30/196 (15.3)	1.92 (1.07-3.45)***
PTSD (PCL)	16/255 (6.3)	43/347 (12.4)	2.11 (1.16-3.84)***	21/196 (10.7)	1.79 (0.91-3.52)
Any of Above	25/255 (9.8)	70/347 (20.2)	2.32 (1.43-3.79)***	37/196 (18.9)	2.13 (1.23-3.68)***

Table 3: Perceived Barriers to Seeking Mental Health Services Among All Study Participants.

Perceived Barrier	Met Screening Criteria for a Mental Disorder (N=132) no./total no. (%)	Did Not Meet Screening Criteria for a Mental Disorder (N=666) no./total no. (%)
It is difficult to schedule an appointment.	54/132 (40.9)***	133/664 (20.0)
There would be difficulty getting time off for treatment.	54/131 (41.2)***	126/665 (18.9)
I don't have adequate transportation.	15/132 (11.4)**	33/666 (5.0)
My leaders discourage the use of mental health services.	11/132 (8.3)*	24/666 (3.6)
I don't know where to get help.	7/132 (5.3)	18/665 (2.7)
Perceived Stigma		
My unit leadership might treat me differently.	80/132 (60.6)***	209/665 (31.4)
I would be seen as weak.	71/132 (53.8)***	172/666 (25.8)
Members of my unit might have less confidence in me.	66/132 (50.0)***	196/666 (29.4)
My visit would not remain confidential.	48/132 (36.6)***	146/666 (21.9)
It would harm my career.	44/132 (33.3)***	122/665 (18.3)

Results

- Overall, 1/3 of participants that deployed within the past 3-12 months reported seeking mental health treatment.
- Combat Medics in the deployed groups were significantly more likely to report experiences with depression compared to Medics who had never deployed.
- Approximately 18-30% of all medics received help in the past year from a mental health professional.
- Previously deployed medics were more likely to obtain mental health assistance than combat medics who had never deployed.
- 60.6% of those meeting the criteria for a mental disorder reported that "My unit leadership might treat me differently." 53.8% of that same group reported that they would be seen as weak.

Conclusion

This appears to be the first study to assess perceptions of mental healthcare and willingness to seek treatment among Combat Medics. In addition, our findings extend the literature examining the relationship between psychological symptomatology and perceived treatment-barriers. Reducing the perception of stigma and the barriers to care among military personnel is a priority for research, policymakers, clinicians, and leaders who are involved in providing care to those who have served in the armed forces. Future research efforts should continue to evaluate the relationships among psychological symptoms, barriers to care, and mental healthcare utilization.

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Appendix D

Symposium Oral Presentations

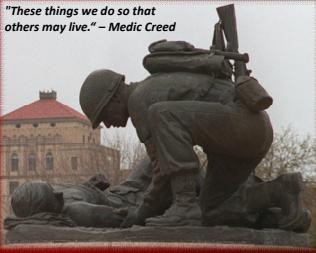
Chapman, P., Maiers, A., Mayer, P., Baker, M., & Escolas, S. (2010, December). Resilience and behavior health of combat medics. In J. Evans, K. Roberts & J.E. Gorman (Chairs), *3rd Annual Trauma Spectrum Conference*. Symposium conducted at the meeting of the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DcoE), National Institutes of Health, and the Department of Veterans Affairs (VA), Bethesda, MD.

Figley, C., Cabrera, D., & Chapman, P. (2010, November). An investigation into the factors predicting resilience among combat medics between deployments: Preliminary findings. In J. Bisson & N. Roberts (Chairs), *ISTSS 26th Annual Meeting*. Symposium conducted at the meeting of International Society for Traumatic Stress Studies, Quebec, Canada.

Figley, C., Cabrera, D., Pitts, B., & Chapman, P. (2011, November). Saving not taking lives: Measuring combat medic mettle. In C. Jackson & B. Stolbach (Chairs), *ISTSS 27th Annual Conference*. Symposium conducted at the meeting of International Society for Traumatic Stress Studies, Baltimore, MD.

Maiers, A., Mayer, P., Baker, M., Escolas, S., & Chapman, P. (2011, March). Research with psychological risk and resiliency factors of combat medics and corpsmen. In C. Engel & C. O'Hara (Chairs), *2011 Armed Forces Public Health Conferences Partners in Prevention*. Symposium conducted at the meeting of U.S. Army Public Health Command and Navy & Marine Corps Public Health Center, Newport News, VA.

 RESILIENCE and COMBAT MEDICS 


"These things we do so that others may live." – Medic Creed

Paula Chapman, PhD¹
 Alan Maiers, Psy D²
 LTC Paul Mayer, MD³
 MAJ Monty Baker, PhD⁴
 LTC Sandie Escolas, PhD³

1 James A Haley Polytrauma Center and Veterans Hospital, HSRD/RRD Center of Excellence in Maximizing Rehabilitation Outcomes
 2 Warrior Resiliency Program, Brooke Army Medical Center
 3 US Army Medical Department Center and School, Academy of Health Sciences, Ft Sam Houston Texas
 4 US Army Medical Department Center and School, Academy of Health Sciences, Ft Sam Houston Texas



Objectives

- To increase awareness of key role played by combat medic
- To examine risk and protective factors associated with combat medics
- To suggest possible future research in this area

Rationale for Studying Resilience in Combat Medics

- Revered military role -Medal of Honor
- Critical to combat units
- Responsible for treating wounded
 - Soldiers and allies
 - civilians and enemy combatants
- Potentially conflicting decisions on the battlefield
- Dual role (Soldier/Medic)




CHARLES CHRIS HAGEMEISTER

History and Training

LTC Paul Mayer
 Director, Combat Medic Training
 US Army Medical Department Center and School
 Ft Sam Houston, Texas

INSERT CD LINK HERE 

Current Knowledge

- United Kingdom
- Air Force Medics Study
- Combat Medic Mettle Study

United Kingdom

- Compared behavioral health indices in deployed medics with all other trades during the Iraq war
 - Medics more likely to report psychological distress, multiple physical symptoms, and, if men, fatigue than other personnel
 - Risk factors: traumatic medical experiences
 - Protective factors: group cohesion, leadership, preparedness, post-deployment experiences

Jones M, Fear N, Greenberg N, Jones N, Hull L, Hotopf M, Wessely S, Rona R (2008). Do medical services personnel who deployed to the Iraq war have worse mental health than other deployed personnel? European J Pub Health, 18[4], 422-427.

Risk and Resiliency in Studies with Air Force Medical Personnel

Partnership between

- Military
- VA (San Francisco VAMC, VA Boston Health Care System, Massachusetts Veteran's Epidemiological Research and Information Center)
- Academic institutions (University of Texas HSC San Antonio, Harvard University, Boston University School of Medicine)

Risk and Resiliency in Studies with Air Force Medical Personnel

- Examined relationship between preparation for medical personnel deployment and
 - Risk Factors: Pre-deployment stresses and potentially traumatic events
 - Protective Factors: Positive Military Experiences and Trait Resilience

Maguen S, Turcotte D, Peterson A, Dremsa T, Garb H, McNally R, and Litz B: Description of Risk and Resiliency Factors among Military Medical Personnel before deployment to Iraq. Military Medicine 2008: 173: 1, 1-9

Risk and Resiliency in Studies with Air Force Medical Personnel

- Examined relationship between unit cohesion and PTSD symptom severity
 - Protective Factor of unit cohesion was verified
 - Relationship proved consistent regardless of level for stress exposure

Dickstein B, McLean C, Mintz J, Conoscenti L, Steenkamp M, Benson T, Isler W, Peterson A and Litz B: Unit Cohesion and PTSD Symptom Severity in Air Force Medical Personnel. Military Medicine 2010: 175: 7, 482-486.

Risk & Resilience Studies -Combat Medic Mettle

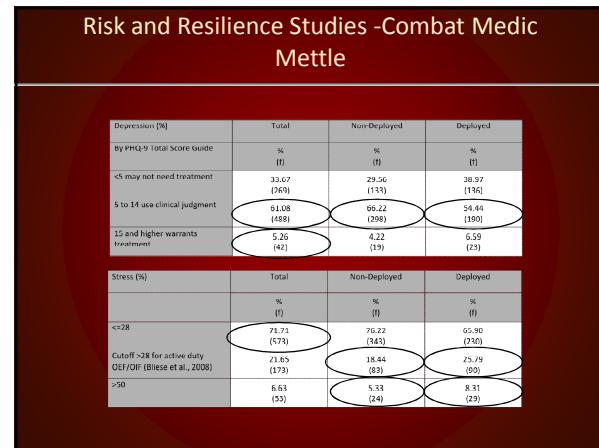
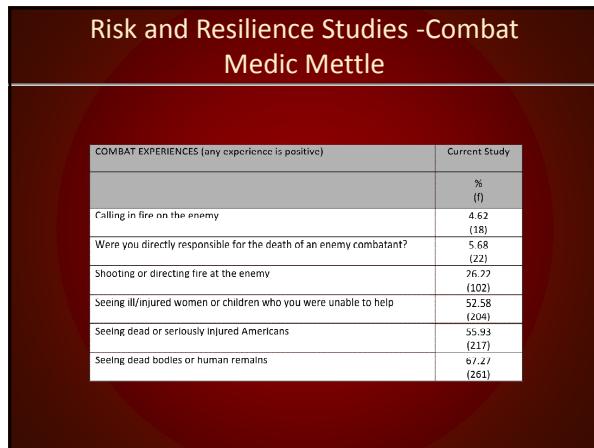
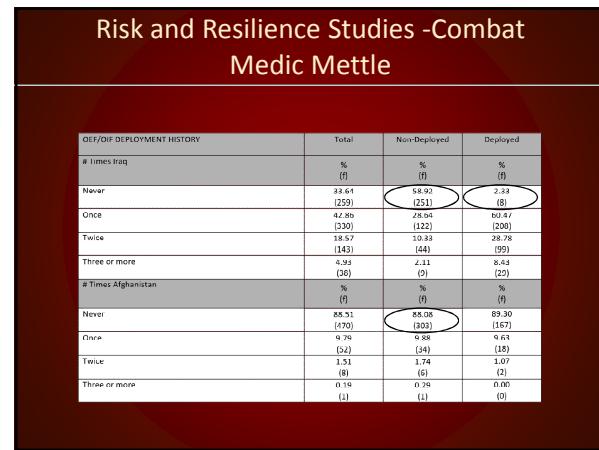
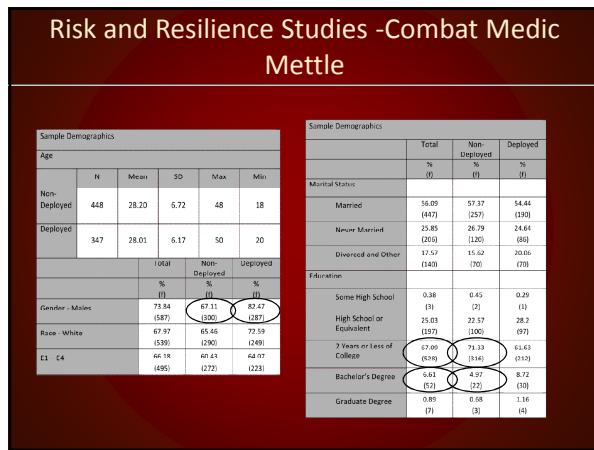
Study Objectives

- To Determine Current Behavioral Health Status of Combat Medic
- To identify risk/protective factors to predict Behavioral Health Outcomes among deployed Combat Medic
- To create an initial model of resiliency for the deployed Combat Medic

The U.S. Army Medical Research Acquisition Activity, 820 Chandler Street, Fort Detrick MD 21702-5014 is the awarding and administering acquisition office for grant W83XWH-09-1-0655. Quant PIs: Chapman; Military PI: Cabrera

Methodology

- 3 year, prospective, longitudinal design
 - Group 1:** Deployed to a combat zone in the OEF/OIF theatre
 - Group 2:** Not deployed to OEF/OIF combat zone
 - Group 3:** Peer-nominated subset from Group 1
- Mixed methods
- Convenience sample from population of U.S. Army Combat Medics in Europe and Ft Hood



**3:30 p.m. - 4:45 p.m.
Kafka/Larmartine Level A**

Predicting PTSD and Resilience

An Investigation Into the Factors Predicting Resilience Among Combat Medics Between Deployments: Preliminary Findings

(Assessment/Diagnosis/Military/Emergency Services/Aid Workers)

Figley, Charles, PhD¹, Cabrera, David, PhD, MSW², Chapman, Paula, PhD³

¹*Tulane University, New Orleans, Louisiana, USA*

²*Uniformed Services University, Bethesda, Maryland, USA*

³*James A Haley VA Hospital & Polytrauma Center, Tampa, Florida, USA*

Combat Medics serve a vital role during war, constantly placing themselves in danger by providing first aid and front-line trauma care on the battlefield. Yet, there exists no research on Combat Medics generally and factors accounting for their resilience and wellbeing, particularly. As part of a larger study incorporating a mixed-methods, prospective, longitudinal design to develop a predictive model of resilience among Combat Medics, we present preliminary findings that will consist of a) determining group differences between Medics recently deployed versus those without a recent deployment; b) comparing behavioral health assessment of recently deployed Medics to Mental Health Advisory Team (MHAT) reports; c) identifying factors revealed from personal interviews; and d) identifying the best model for explaining combat medic resilience. Preliminary results are based on a sample of 2 groups totaling 287: Group 1 Medics 3-6 months post-deployment to OEF/OIF; Group 2 Medics who were not deployed to the OEF/OIF theater within the last 12 months. Measures included those utilized by MHAT, as well as resilience and social desirability. Additionally, a portion of those from Group 1 nominated by their fellow combat medics as being the most resilient were interviewed two months later. The authors will discuss the program of research and the implications of the preliminary findings in terms of understanding and caring for combat medics, to include training, education and support throughout their career. The study is the first of its kind involving Combat Medics and should prove quite useful to both researchers and practitioners.

Effects of Conflicts on Non-Combatants

(Prevent, Mil/Vets)

Saving Not Taking Lives: Measuring Combat Medic Mettle

Figley, Charles, PhD¹; Cabrera, David, PhD, MSW²; Pitts, Barbara, PhD³; Chapman, Paula, PhD⁴

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The medic mettle study, a mixed method design, was funded by the US Army to develop a model of combat stress resilience utilizing results from a survey of 350 US Army Combat Medics stationed in Germany and Ft. Hood. The qualitative research component was composed of 16 intensive, videotaped interviews with combat medics between war deployments. Variable Generating Activity protocol was used to identify, define, and quantify variables among the more than 35 hours of video interview data across five domains. The preliminary results include: (1) 138 variables emerged that appear to provide some missing pieces in our understanding of combat stress injury and its psychosocial markers; (2) confirmed five variable domains within an intrinsic nomothetic network of notions and categories of variables that either operationalize medic resilience or critically important variables affected by medic resilience; (3) confirmed the utility of annual surveys to validate the qualitative findings, and; (4) developed the initial draft of the Medic Mettle Scale based on feedback from the qualitative interviews and further developed during the annual, web-based survey. The results of this research have far-reaching effects for targeting behavioral health programs and for educators and leaders who can better prepare future Combat Medics for service in combat zones.

RESILIENCE and COMBAT MEDICS

"These things we do so that others may live." - Medic Creed

Alan Maiers, Psy D²
 LTC Paul Mayer, MD³
 MAJ Monty Baker, PhD⁴
 LTC Sandie Escalas, PhD³
 Paula Chapman, PhD¹

1 James A. Haley Polytrauma Center and Veterans Hospital, HSRD/RRD Center of Excellence in Maximizing Rehabilitation Outcomes
 2 Warrior Resiliency Program, Brooke Army Medical Center
 3 US Army Medical Department Center and School, Academy of Health Sciences, Ft Sam Houston Texas
 4 White House Medical Center, Los Angeles, Air Force Base



Objectives

- Review the importance of studying this population
- Describe challenges in training medics and how they are being prepared psychologically
- Review literature associated with psychological risk and resiliency factors of medics
- Describe current research being conducted with medics
- Offer a research agenda for future direction

Rationale for Studying Resilience in Combat Medics

- Revered military role - Medal of Honor
- Critical to combat units
- Responsible for treating wounded
 - Soldiers and allies
 - civilians and enemy combatants
- Potentially conflicting decisions on the battlefield
- Dual role (Soldier/Medic)
- No studies specifically on combat medics*




CHARLES CHRIS HAGEMEISTER

68 Whiskey
Combat Medic Training

LTC Paul Mayer, MD
 Director, Department of Combat Medic Training
 Ft Sam Houston, TX
 21 March, 2011





Department of Combat Medic Training (DCMT)

- Provides the Army with the best trained Combat Medics
- Highly motivated, well disciplined, and physically & mentally fit.
- A multifaceted learning environment
 - Lectures
 - Demonstrations
 - Hands-on practical exercises
 - Scenario-based training
 Combined Field Training Exercise (CFIX)



68W Overview

- 2nd largest Specialty in the Army
- Trains over 7,500 Soldiers annually
 - 17 classes per year, with new classes starting every 2-3 weeks
 - Duration of 16 weeks
 - Class size is 450, 80% male
 - Service members from other branches & other countries are also trained

68W Curriculum Overview

- EMT-B (Emergency Medical Technician-Basic)
- Limited Primary Care
- Field Crafts
 - “Whiskey” training
 - Simulations
 - Combined Field Training Exercise (CFTX)

68W Curriculum Overview: Emergency Medical Technician-Basic (EMT-B)

- Lasts 7 weeks
- The curriculum is developed by the Department of Transportation (DOT)
- Students attain Healthcare Provider CPR Certification
- All Graduates are NREMT-B Certified & receive the “EMT” patch
 - National pass rate 65%
 - DCMT pass rate 92%

68W Curriculum Overview: Limited Primary Care

- Lasts 1 week
- Sick call
- Medical documentation
- Pharmacology
- Wound care



Field Crafts

- Tactical Medicine (“Whiskey”)
- Simulation Training
 - Hands-on training on mannequins in the Combat Trauma Patient Simulator (CTPS)
- Combined Field Training Exercise (CFTX)
 - Consists of Situational & Field Training



Field Crafts: Tactical Medicine

- 6 weeks Tactical Combat Casualty Care (TCCC) fundamentals
- Core Skills
 - Combat Casualty Assessment (assess injuries the patient may have)
 - Tourniquet (stops bleeding on extremities - arms & legs)
 - Hemostatic agents (stops bleeding where tourniquets cannot - neck, armpits, & groin area)
 - Needle Chest Decompression (relieves air/pressure from around the lungs)
 - Surgical Airway (allows breathing via an opening in the throat when major facial damage is present)
 - King LT Airway (devices used to maintain an open airway)
 - IV & FAST-1 (allows fluids to be put into the body intravenously or through bone)
- Skills Validation
 - Hands-on test of overall knowledge & skills

Field Crafts: Simulation Training

- 116 Human Patient Simulators (HPS)
- HPSs allow for hands-on practice, which is required for certification, & allows the students to make mistakes without harming anyone.



Field Crafts: Combined Field Training Exercise

- Lasts 2 weeks & is located at the Soldier Medic Training Site (SMTS) on Camp Bullis
- Consists of Situational & Field Training Exercises:
 - Convoy operations (reacting to ambushes while in vehicles)
 - Patrol
 - MOUT (Military Operations in Urban Terrain)
 - BAS (Battalion Aid Station)
 - CBRNE (Chemical, Biological, Radioactive, Nuclear, & Explosive)
- Mass casualty exercises (when medical care needs overwhelm medical care capability)

68W Mental Health Training

- Behavioral Health Emergencies - 2 hours
- Battle Mind Resiliency Training - 3 hours
- Depression/Suicide Recognition and Prevention -1 Hour

Summary

- The lowest Killed In Action (KIA) rate is attributed to the following:
 - Improved Tactical Combat Casualty Care
 - Enhanced Personal Protective Equipment
 - Emphasis on Hemorrhage Control
 - Improved MEDEVAC/CASEVAC Response Times

Current Knowledge on Risk and Resilience of Combat Medics

Air Force Medics Study - Maj Monty Baker

Combat Medic Mettle Study - Dr. Paula Chapman



Ft Sam Study - LTC Sandra Escolas



Risk and Resiliency in Deployed Air Force Medical Personnel

MAJ Monty Baker
Wilford Hall Medical Center
Lackland AFB, TX
21 March, 2011



Collaborators

- *University of Texas Health Science Center at San Antonio - Alan Peterson, PhD (PI, Lt Col - Ret.); Jim Mintz, PhD; John Hatch, PhD
- *Harvard University - Richard McNally, PhD
- *National Center for PTSD, & Boston University - Brett Litz, PhD
- *Wilford Hall Medical Center, USAF - Maj Monty Baker, PhD; Lt Col William Isler, PhD

Funded by United States Air Force Surgeon General's Operational Medicine Research Program (AFMOR) September 2007 to present

Risk and Resiliency - Deployed Air Force Medical Personnel

Purpose/Objective

- Prospective evaluation of risk, resilience, natural recovery, and posttraumatic growth in USAF medical personnel deployed to Joint Base Balad, Iraq.



Risk and Resiliency - Deployed Air Force Medical Personnel

- Examined relationship between preparation for medical personnel deployment and
 - Risk Factors: Pre-deployment stresses and potentially traumatic events
 - Protective Factors: Positive Military Experiences and Trait Resilience

Maguen, S., Turcotte, D. M., Peterson, A. L., Dremza, T. L., Garb, H. N., McNally, R. J., & Litz, B. T. (2008). Military Medical Personnel: Risk and Resilience Factors Prior to Deployment to Iraq. *Military Medicine*, 173 (1), 1-9.

Risk and Resiliency - Deployed Air Force Medical Personnel

Methodology

- Pre-, mid-, and post-deployment at 1-, 6-, and 12- months
- Anonymous survey
- Variables: previous exposure to traumatic life events, PTSD symptoms, healthcare stressors unique to deployed military settings, general military attitudes and experiences, anxiety, depression, resilience, and post-traumatic growth

Risk and Resiliency - Deployed Air Force Medical Personnel

- 2 manuscripts currently in press; 16 additional presentations at scientific conferences

Risk and Resiliency - Deployed Air Force Medical Personnel

- Examined relationship between unit cohesion and PTSD symptom severity
 - Protective Factor of unit cohesion was verified
 - Relationship proved consistent regardless of level for stress exposure

Dickstein, B. D., McLean, C. P., Mintz, J., Conoscenti, L., Steenkamp, M. M., Benson, T. A., Isler, W. C., Peterson, A. L., & Litz, B. T. (2010). Unit cohesion and PTSD symptom severity in Air Force medical personnel. *Military Medicine*, 175 (7), 482-486.



Risk and Resiliency in Deployed and Non-Deployed Combat Medics

Paula L Chapman
James A Haley Polytrauma Center and VA Hospital
Tampa, FL
21 March, 2011



Collaborators:
*Uniformed Services and Health Sciences University – MAJ David Cabreza, Military PI
*Tulane University – Charles Figley, PhD, Qualitative PI
James A. Haley Polytrauma Center and VA Hospital Center of Excellence, Maximizing Rehabilitation Outcomes – Paula Chapman, PhD, Quantitative PI
*Wilford Hall Medical Center, USAF – Maj Monty Baker, PhD
*Warrior Resiliency Program, Brooke Army Medical Center, Alan Maier, PsyD
AMEDD C&S, LTC Sandie Escalas, PhD

The U.S. Army Medical Research Acquisition Activity, 820 Chandler Street, Fort Detrick MD 21702-5014 is the awarding and administering acquisition office for grant W81XWH-09-1-0653. Quant PE: Chapman; Military PI: Cabreza

Risk and Resiliency in Combat Medics

Objectives

- To determine current behavioral health status of Army combat medics
- To identify risk/protective factors to predict behavioral health outcomes among Army Combat Medic
- To create an initial model of resiliency for the deployed Combat Medic

Risk and Resiliency in Combat Medics

Methodology

- 3 year, prospective, longitudinal design
- Three groups:
 - Never deployed
 - 3-6 months post-deployment from a 12 month deployment
 - 12+ months post-deployment; not deployed in at least 12 months
- Mixed methods
- Convenience sample from population of U.S. Army Combat Medics in Europe and Ft Hood

Demographics

	Never Deployed % (n)	3-6 mo PD % (n)	12+ mo PD % (n)		Never Deployed % (n)	3-6 mo PD % (n)	12+ mo PD % (n)
Grade/Rank							
E1-E4	80.67 (192)	64.18 (224)	37.74 (80)	High School or Less	26.89 (64)	29.51 (103)	21.23 (45)
Race							
Other	19.66 (46)	12.57 (43)	16.27 (34)	Some College	67.23 (160)	60.74 (212)	73.58 (156)
White	65.38 (153)	72.81 (249)	65.55 (137)	College Degree	5.88 (14)	9.74 (34)	5.19 (11)
Black	14.96 (35)	14.62 (50)	18.18 (38)	Deployment	0.00 (0)	97.67 (336)	93.09 (175)
Marital Status							
Not Married	38.24 (91)	27.51 (96)	16.51 (35)	Deployed to OIF	0.00 (0)	10.70 (20)	38.68 (41)
Married Separated	55.88 (133)	59.89 (209)	72.17 (153)	Deployed to OEF	0.00 (0)	10.70 (20)	38.68 (41)
Divorced	5.88 (14)	12.61 (44)	11.32 (24)				

Threat, Loss & Potential Moral Injuries

Threat	Deployed % (n)
Did you believe you were in serious danger of being injured or killed?	76.51 (254)
Loss	
Was a Soldier whom you care about and whom you consider close to you seriously injured or killed?	43.97 (153)
Were you wounded or injured?	8.65 (30)
Potential Moral Injuries	
During your most recent deployment, did you personally engage the enemy in fire fight?	27.49 (94)
Were you directly responsible for the death of an enemy combatant?	5.76 (20)
Were you directly responsible for the death of civilians?	1.44 (5)

Mental Health Services

Mental Health Services	Never Deployed % (n)	3-6 mo PD % (n)	12 mo PD % (n)
Mental health professional?	16.81 (40)	26.65 (93)	29.72 (63)
Combat stress control professional?	0.85 (2)	13.54 (47)	14.56 (30)
General medical doctor?	11.02 (26)	16.47 (57)	18.84 (39)
Military chaplain?	9.28 (22)	12.39 (43)	9.13 (19)
Medic in your unit?	1.69 (4)	4.61 (16)	3.88 (8)
Soldier in your unit?	2.11 (5)	4.60 (16)	4.81 (10)

Experiences in Combat

Experiences in Combat	Deployed % (n)
I or members of my unit received hostile incoming fire from small arms, artillery, rockets, mortars, or bombs.	83.08 (324)
Working in areas that were mined or had IEDs.	73.49 (255)
I or members of my unit were attacked by terrorists or civilians.	67.26 (263)
Clearing/searching homes or buildings.	57.76 (201)
I personally witnessed someone from my unit or an ally unit being seriously injured.	36.73 (137)
Personally witnessed Soldiers from enemy troops being seriously wounded or killed.	33.50 (131)
My unit engaged in a battle in which it suffered casualties.	32.74 (128)
Shooting or directing fire at the enemy.	26.80 (93)
I fired my weapon at the enemy.	19.95 (78)
I killed or think I killed someone in combat.	8.21 (32)

Depression and PTSD

Depression	Never Deployed % (n)	3-6 mo PD % (n)	12 mo PD % (n)
< 5	68.02 (151)	54.71 (186)	63.21 (122)
5 to 14	28.38 (63)	38.82 (132)	32.12 (62)
>= 15	3.60 (8)	6.47 (22)	4.66 (9)
PTSD	Never Deployed % (n)	3-6 mo PD % (n)	12 mo PD % (n)
<= 28	83.33 (185)	65.59 (223)	69.43 (134)
29 to 49	13.06 (29)	25.88 (88)	23.83 (46)
>= 50	3.60 (8)	8.53 (29)	6.74 (13)

Risk and Resiliency in Combat Medics

Summary

- Young, well-educated
- Life threat
- Resource for stress management
- Dual role of healer and warfighter
- Depression versus stress

Risk and Resiliency in Combat Medic Trainees

Ameliorating Pre-Existing Risk Factors & Enhancing Protective Factors of Soldier Medics During Training
Escaros, S., Mayer, P., Baker, M., Chapman, P. & Maiers, A.

LTC Sandra Escaros, PhD
AMEDD C&S
Ft Sam Houston, TX
21 March, 2011



The U.S. Army Medical Research Acquisition Activity, 620 Chandler Street, Fort Detrick, MD 21702-5014 is the awarding and administering acquisition office for grant D81 U10 JS 164 Military Pt: Escaros

Risk and Resiliency in Combat Medic Trainees

Purpose/Objectives

- To conduct a behavioral health assessment of US Army Soldiers assigned for Combat Medic training
- To assess pre-existing behavioral health issues of Soldiers Medics
- To determine pre-existing risk factors to psychological resiliency
- To determine pre-existing protective factors of psychological resiliency

Risk and Resiliency in Combat Medic Trainees

Methodology

- Repeated-measures design
 - Time 1 - in-processing
 - Time 2 - out-processing
- Inclusion/Exclusion criteria
 - +18 years old
 - US Army Soldier
 - Attached to Fort Sam Houston
 - Attendance of 68W Health Care Specialist AIT
 - Agree to complete both surveys

Risk and Resiliency in Combat Medic Trainees

Demographics	age, gender, race/ethnicity, component grade/rank, education, marital status
Locus of Control (LOC)	generalized expectancies for internal versus external control of reinforcement
Relationship Questionnaire (RQ)	attachment style
Life Experiences Survey (LES)	pre-existing stressful events and traumas
Patient Health Questionnaire (PHQ-9)	depression and anxiety symptoms
Post Traumatic Stress Disorder (PCL-C)	post traumatic stress symptoms
Positive and Negative Affect Schedule (PANAS)	positive and negative affect
Response to Stressful Experience Scale (RSES)	resilient behaviors and processes (cognitive flexibility, spirituality, active coping, self-efficacy, making-meaning, restoration)
Dispositional Resilience Scale (DRS-15)	hardiness (commitment/control/challenge)
Test of Self-Conscious Affect (TOSCA)	shame and guilt proneness
The Family Adaptability and Cohesion Evaluation Scale (FACES)	family cohesion

Risk and Resiliency in Combat Medic Trainees

- Time 1 data collection is complete
 - As of 08 March 2011, approximately 580 incoming Combat Medic students have completed the survey
- Time 2 data collection will commence June 2011



Need for Future Research

- Specific research
 - Combat medics offer a potentially distinct group to study varying aspects of resilience and risk factors.
 - To date, a limited number of cross-sectional studies have been executed with convenience sampling.
 - Integrated longitudinal studies are needed that address personal, environmental, organizational and occupational factors.

Alan's Wrap Up

- Possibilities mentioned in the conference call
 - Not representing navy corpsmen
 - Future directions/call for collaboration on future projects from new folks
 - What has and is being done

Appendix E

Interviews

Robbins, S., & Beardsley, S. (2011, September 16). Study looks at sychological effects suffered by combat medics: Interview with Paula Chapman, Ph.D.. *Stars and Stripes*. Retrieved from <http://www.stripes.com/news/study-looks-at-psychological-effects-suffered-by-combat-medics-1.155272>

Tozer, J. (2011, July 25). Medical monday: Care for the combat medic. *Research Spotlight for DoD Live*. Retrieved from <http://www.dodlive.mil/index.php/2011/07/care-for-the-combat-medic/>

VA Research Currents (2011, May) Caring for the medic: Interview with Paula, Chapman, Ph.D.. *VA Research Currents Research News from the U.S. Department of Veterans Affairs*. Retrieved from <http://www.research.va.gov/currents/may-june11/may-june11-03.cfm>

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Study looks at psychological effects suffered by combat medics

By SETH ROBBINS , STEVEN BEARDSLEY

Stars and Stripes

Published: September 16, 2011

Related

- [Brit vet with PTSD compiling poems, prose by fellow sufferers](#)

Combat medics serve double duty, both professionally and psychologically.

In addition to bearing all the responsibilities of soldiering, medics must calmly treat the devastating wounds of modern warfare: legs and arms mangled by roadside bombs, bodies peppered with shrapnel, arteries severed by high-velocity bullets.

They are more exposed than other soldiers to seriously wounded or dead fellow servicemembers. Unlike hospital doctors or nurses, who rarely know their patients, medics have the added pressure of being close to the soldiers they are trying to keep alive.

And when one dies, medics often face self-doubt — an emotion they must hide or risk losing the platoon's confidence, said Sgt. Joshua Hetisimer, 33, a senior medic with the 173rd Airborne Brigade Combat Team, who has deployed three times.

It's an awesome responsibility all medics embrace, said Sgt. Chad Howell, 29, of 557 Area Support Medical Company.

"Guys get hurt on the battlefield," he said, "they look to us, they scream your name."

Now, preliminary results from a study involving 800 medics — the first of its kind — suggest that medics suffer from higher rates of depression than other soldiers.

Dr. Paula Chapman, a research health scientist at Tampa's Veterans Administration hospital and the study's lead investigator, said many of the medics talked about not being able to help when needed.

"Is the depression tied to guilt-based issues?" said Chapman, who was an Army medic, now retired. "That we don't know yet."

Chapman's preliminary findings showed medics were less likely than other soldiers to have symptoms of post-traumatic stress disorder. This could indicate that medics, whose mission is to heal, and who often choose their specialty, may be more resilient when it comes to combat stress, she said.

But the study looked at medics only three months and 12 months after their deployments, and symptoms of PTSD can develop over time.

"The next step is to look longitudinally at the combat medic, from training through post deployment," Chapman said.

Despite the study's results, medics say they already know — or at least strongly suspect — that the unique stressors of their job can cause mental health problems later.

"There is a heightened pressure for medics on the battlefield," Howell said. "And PTSD is definitely one of the consequences of what we do."

Sgt. Dallas Jones, of the 173rd Airborne Brigade Combat Team, who was in charge of 38 junior medics attached to various platoons in Afghanistan in 2007, said he made a point of checking on his medics weekly, just to talk and let them decompress. On his visits, he often brought along new medical gadgetry or comfort food, he said, and he joined them on patrols, or doubled with them on dangerous missions.

"When you're the medic, and the platoon loses a guy, yeah, it affects you," Jones said.

Hetisimer recalled the death of a friend, whose Humvee was struck by an improvised explosive device on a patrol in Ramadi, Iraq. Hetisimer saw him on the litter.

"He was still alive," he said, "but he knew, and we knew, what was going to happen."

Hetisimer and colleagues worked on him for 45 minutes. His friend died en route to the hospital.

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Medical Monday: Care for the Combat Medic

Filed under [DoD News](#) {2 comments}



Army Sgt. Jesse Rosenfield, a flight medic with Task Force Thunder Brigade, tends to an injured soldier aboard a Blackhawk helicopter in Kandahar province, Afghanistan, in April 2011.

(From www.research.va.gov)

Having graduated at the top of the Army combat medic course at Fort Sam Houston in 1989, Paula Chapman, PhD, knows firsthand the risks and challenges of this honored military profession. Today, she is putting that insight to use as a researcher.

"I suffered some of my own military trauma and basically had to work my way through it," admits Chapman candidly. "I had to battle the demons and come out the other end of the tunnel. So that's why I study what I study."

An investigator at the Tampa VA Medical Center, Chapman is part of a Defense-funded study called Combat Medic Mettle. The three-year study, now in the data-analysis phase, includes some 800 Army combat medics. More than half served in Iraq or Afghanistan.

The researchers hope to pinpoint the factors that create emotional resilience and enable medics to thrive amid harsh conditions. They also want to learn what combat experiences cause the most stress. The next step will be building training programs that incorporate the findings.

The data collected so far confirm the grim challenges faced by medics during deployment:

- 67 percent saw dead bodies or human remains
- 56 percent saw dead or seriously injured Americans
- 53 percent saw sick or injured women or children they were unable to help
- 26 percent reported shooting or directing fire at the enemy, and about 6 percent said they were directly responsible for the death of an enemy combatant

Medics are expected not only to care for their comrades—and for allied troops and civilians—but to function as warriors. In fact, they may need to render care for the same enemy fighter they shot at moments earlier.

"The combat medic attached to a foot patrol has to also act as a soldier," says Chapman. "They may be gunning down an enemy combatant at one point, and then have to go provide aid to him."

"Compassion fatigue" is another concern. By nature, says Chapman, medics want to help other people. When they can't do so, this causes stress. This is the same problem that was documented among many doctors and nurses who served in Vietnam.

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"The caretaker begins to be traumatized and fatigued because of the sheer volume of what they have to do and some of what they're seeing," says Chapman. "Remember, medics go into this job because they want to help people. When they see ill or injured persons—especially women and children—and can't help them because the area's not secure, that's likely to have an effect on them."

Chapman also points out that combat medics often see more action than other soldiers. "They may go out with one squad one night and another squad the next."

The fact that medics know the foot soldiers they are caring for—unlike doctors or nurses at field hospitals—adds yet another layer of stress. "Not only do they have to help them, but they know these people," notes Chapman. "They serve side by side with them, and they may have seen how the injuries occurred. So it goes beyond compassion fatigue—there's a little more to it with a combat medic."

Based on the data they have so far, Chapman and her military colleagues point out that depression symptoms appear to be more common than posttraumatic stress symptoms among medics three months post-deployment. But the researchers are continuing to track study participants to see which symptoms subside over time and which get worse.

Chapman's team is now launching a related study in conjunction with the Army Medical Department Center and School. The effort will focus on traumas that combat medics may have experienced prior to training, as well as baseline risk and protective factors that could reduce or promote resilience. The goal is to learn which risk factors can be ameliorated, and which protective factors enhanced, through combat-medic training.

Chapman and colleagues plan to include experimental tasks to see how trainees respond to emotional stress. The researchers will measure the heart's electrical activity through electrocardiograms. They will also look at other known indicators of stress: respiration, eye movement, muscle response, and galvanic skin response—changes in the skin's ability to conduct electricity. Emotions such as fear, anger and startle can activate sweat glands, and the extra moisture increases conductivity.

Chapman plans to also help conduct a trial involving Navy corpsmen, who care for Marines on the battlefield. Yet another study in the works will zero in on the issue of loss—how medics are affected when they "lose" soldiers, versus being able to save their lives. She hopes findings from all the research will guide the way to improved training to better prepare medics for their role, which is succinctly defined in their creed: "These things we do so that others may live."

Check out these other posts:

Caring for the medic

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Medic mettle—Army Sgt. Jesse Rosenfield, a flight medic with Task Force Thunder Brigade, tends to an injured soldier aboard a Blackhawk helicopter in Kandahar province, Afghanistan, in April 2011.



Photo by Paula Brustein/Safety Images



As part of her research on Army combat medics and resilience, VA's Dr. Paula Chapman is studying physiological indicators of stress such as heart activity and galvanic skin response.

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"Compassion fatigue" is another concern. By nature, says Chapman, medics want to help other people. When they can't do so, this causes stress. This is the same problem that was documented among many doctors and nurses who served in Vietnam.

"The caretaker begins to be traumatized and fatigued because of the sheer volume of what they have to do and some of what they're seeing," says Chapman. "Remember, medics go into this job because they want to help people. When they see ill or injured persons—especially women and children—and can't help them because the area's not secure, that's likely to have an effect on them."

Chapman also points out that combat medics often see more action than other soldiers. "They may go out with one squad one night and another squad the next."

The fact that medics know the foot soldiers they are caring for—unlike doctors or nurses at field hospitals—adds yet another

see MEDIC on page 8

Inside: IBM's 'Watson' super-computer prepares for a role in medicine

MEDIC *(from page 5)*

layer of stress. "Not only do they have to help them, but they know these people," notes Chapman. "They serve side by side with them, and they may have seen how the injuries occurred. So it goes beyond compassion fatigue—there's a little more to it with a combat medic."

Based on the data they have so far, Chapman and her military colleagues point out that depression symptoms appear to be more common than posttraumatic stress symptoms among medics three months post-deployment. But the researchers are continuing to track study participants to see which symptoms subside over time and which get worse.

Chapman's team is now launching a related study in conjunction with the Army Medical Department Center and School. The effort will focus on traumas that combat medics may have experienced prior to training, as well as baseline risk and protective factors that could reduce or promote resilience. The goal is to learn which risk factors can be ameliorated, and which protective factors enhanced, through combat-medic training.

Chapman and colleagues plan to include experimental tasks to see how



Focus on medics—An Army flight medic (front right) helps Marines carry a wounded Afghan man to a waiting medevac helicopter. VA and Army researchers are studying the factors that help build combat medics' resilience to stress and trauma.

trainees respond to emotional stress. The researchers will measure the heart's electrical activity through electrocardiograms. They will also look at other known indicators of stress: respiration, eye movement, muscle response, and galvanic skin response—changes in the skin's ability to conduct electricity. Emotions such as fear, anger and startle can activate sweat glands, and the extra moisture increases conductivity.

Chapman plans to also help conduct a trial involving Navy corpsmen, who care for Marines on the battlefield. Yet another study in the works will zero in on the issue of loss—how medics are affected when they "lose" soldiers, versus being able to save their lives. She hopes findings from all the research will guide the way to improved training to better prepare medics for their role, which is succinctly defined in their creed: "These things we do so that others may live." 